S. HRG. 98-420

CLEAN WATER ACT AMENDMENTS: NON-POINT SOURCE MANAGEMENT PROGRAM

HEARINGS

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

JULY 19, 1983—WASHINGTON, D.C.
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CLEAN WATER ACT AMENDMENTS: NONPOINT SOURCE MANAGEMENT PROGRAM

TUESDAY, JULY 19, 1983

United States Senate,
Committee on Environment and Public Works,
Washington, D.C.

The committee met at 10:05 a.m. in room SD-406, Dirksen Senate Office Building, Hon. Robert T. Stafford (chairman of the committee) presiding.

Present: Senators Stafford, Chafee, Simpson, Durenberger, Bentsen, and Mitchell.

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Senator **Stafford**. The Committee on Environment and Public Works will please come to order.

The purpose of today's hearing is to take public testimony on the nonpoint source management program as proposed by the Subcommittee on Environmental Pollution. It became apparent in hearings before the subcommittee that nonpoint source water pollution is a serious nationwide problem. Maryland officials, for example, have found that nonpoint sources are major contributors of nutrients, sediments, and bacteria in every freshwater and estuarine system they have studied, including the Chesapeake Bay.

We know from EPA research that urban runoff is virtually always contaminated with lead, copper, zinc, and other toxic heavy metals. Agricultural lands also contribute huge amounts of sediment, nutrients, and pesticides to waterways.

The Department of Agriculture, for example, testified that more than 15 percent of fertilizers that are applied to cropland washes into the Nation's waterways along with an estimated 6.4 billion tons of topsoil per year. Construction sites are another major source of sediments. As point sources, industrial and municipal sources are brought under better control, nonpoint sources become relatively more important in terms of water quality degradation. Amendments to the Clean Water Act already approved by this committee will strengthen the point source program, but we must initiate a new nonpoint source management program if we are to make headway against this important problem.

The task, then, is to develop an effective and workable program that will build on the extensive knowledge base already established by earlier programs and by literally dozens and dozens of demonstration projects. When the committee examined the subcommittee bill for the nonpoint source pollution management program, it decided to hold an additional hearing to examine in detail the subcommittee proposal. That is why we are here today, particularly at the appropriate, I think, insistence of my friend and distinguished colleague from Texas, Senator Bentsen.

We have a large number of witnesses, and I regret to say that we are unable to hear as many witnesses as wished to testify. However, the record will be open for written testimony from anyone who may care to comment on these issues. I can assure you that all written testimony will be considered. Because of the large number of witnesses, it is necessary also to limit each witness to 5 minutes for his or her oral statement.

I would advise all witnesses who may be going to testify that their full statements will appear in the record.

I understand that all witnesses have been apprised of this limitation and have agreed to cooperate. So I put you on notice.

Senator Bentsen, do you have a statement?

OPENING STATEMENT OF HON. LLOYD BENTSEN, U.S. SENATOR FROM THE STATE OF TEXAS

Senator **Bentsen**. Thank you very much, Mr. Chairman.

I am most appreciative of the fact that you have called this hearing on this very important issue. I think there is general agreement that nonpoint source pollution is a problem that just has to be addressed, and I hold to that viewpoint. I want to work with you in trying to find a solution to it and I hope that this hearing is going to help contribute ideas that will bring about that kind of solution.

The one thing I did not want to see was the clean water amendments killed because of controversy that could develop over this issue, and that is why I asked the committee to delete the original proposal in the markup. The language in the subcommittee bill, I think, was a lightening rod for opposition, an opposition that would threaten the entire bill. A regulatory program using cross-compliance with other Federal programs such as farm programs during that enforcement would alienate those people who must support that program for it to work. That's our Nation's farmers and our ranchers and our other landowners.

The farmers and ranchers of this country are not new to these problems. You referred, in your opening statement, Mr. Chairman, to the millions of tons, thousands of acres of sediment that flow into the waterways. Well, the farmers have been working with soil conservation districts across the country in trying to deter that, to save the topsoil of this Nation. There have been incentives built into the system which brought about voluntary compliance; they have understood it is in their best interest to accomplish these things, and we ought to be trying to find means of doing that when we talk about nonpoint source pollution.

Once again, I want to commend you, Mr. Chairman, for your willingness to have this hearing, to develop a workable solution to the problem of nonpoint source pollution. I am with you on that.

Senator **Stafford**. Thank you very much, Senator. We always work pretty well together, and I am sure we can do it in this case.

I'm going to place Senator Simpson's statement in the record at this point, anticipating his arrival, and also a letter to me from Senator Abdnor with his statement and a letter from the Governor of South Dakota attached.

[The material referred to follows:]

STATEMENT OF SENATOR ALAN K. SIMPSON
FOR NONPOINT SOURCE
JULY 19, 1983

MR. CHAIRMAN, I AM PLEASED TO BE HERE TODAY TO HEAR TESTIMONY AND RECOMMENDATIONS REGARDING NONPOINT SOURCES OF WATER POLLUTION. NONPOINT SOURCE POLLUTION IS INCREASINGLY BECOMING RECOGNIZED AS A PHENOMENON THAT MUST BE DEALT WITH. AN ARTICLE IN THE WASHINGTON POST THIS MORNING IS A PRIME EXAMPLE OF HOW INADEQUATE SEWAGE TREATMENT AND AGRICULTURAL RUNOFF WATER CAN NEGATIVELY IMPACT AN ENTIRE AQUATIC ECOSYSTEM.

WHEN THIS COMMITTEE TOOK UP THE CLEAN WATER ACT AMENDMENTS, I BELIEVED SOME CLARIFICATION WAS NEEDED OF THE NONPOINT SOURCE PROVISION THAT SENATOR DURENBERGER HAD PUT FORWARD. HOWEVER, I WOULD WANT THE RECORD VERY CLEAR, I AM NOT CATEGORICALLY OPPOSED TO NONPOINT POLLUTION CONTROL. INDEED, I VERY MUCH SUPPORT THE CONCEPT THAT WE MUST INCREASE OUR EFFORTS TO CONTROL NONPOINT SOURCE POLLUTION. I DO NOT SUPPORT CONTROL PROGRAMS THAT ARE PRIMARILY VOLUNTARY ON THE PART OF THE STATES. YET

I UNDERSTAND THE NEED FOR SOME TYPE OF NEGATIVE REINFORCEMENT FOR THOSE IN THE PRIVATE SECTOR THAT DO NOT UTILIZE MANAGEMENT PRACTICES THAT WOULD AVOID WASTEFUL OR INEFFICIENT PRACTICES. IF THIS COMMITTEE WISHES TO FORMULATE A PROGRAM THAT WILL HAVE CREDIBILITY WITH THOSE IT AFFECTS, THEN I FEEL THAT WE MUST START FROM THE PREMISE THAT WE HAVE TO OBTAIN SOLID TESTIMONY FROM AFFECTED GROUPS -- AND THAT IS WHAT WE ARE DOING HERE TODAY.

I WOULD WISH TO COMPLIMENT MY FRIEND, SENATOR DURENBERGER, FOR TAKING ON THIS CHALLENGE AND I LOOK FORWARD TO REVIEWING TODAY'S TESTIMONY AND TO WORKING WITH THE SENATOR AND THE OTHER MEMBERS IN FORMULATING A WORKABLE NONPOINT POLLUTION CONTROL PROVISION.

JAMES ABDNOR
South Dakota

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VERNON C. LOEN
Administrative Assistant

United States Senate
WASHINGTON, D.C. 20510

COMMITTEES:
APPROPRIATIONS
ENVIRONMENT AND PUBLIC WORKS
JOINT ECONOMIC

July 19, 1983

The Honorable Robert T. Stafford
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Bob:

Attached is a brief statement and a copy of Governor Janklow's letter to me, outlining the State of South Dakota's concerns with respect to the non-point source language proposed by the Subcommittee on Environmental Pollution.

I regret that I am unable to attend today's hearing -- as you are probably aware, I am involved in the Conference Committee on the Supplemental Appropriations measure.

Thank you.

Sincerely,

Jim

JAMES ABDNOR
United States Senator

JA/bam

Mr. Chairman, as I stated during the full Committee markup of S. 431, the Clean Water Act Amendments of 1983, I have a number of concerns with respect to the non-point source language recommended by the Subcommittee on Environmental Pollution. I believe that such a regulatory scheme may only serve to disrupt the effective programs ongoing already in a number of states.

My own State of South Dakota has taken steps to control more effectively water pollution from non-point sources. With the Chairman's permission, I wish to have included in today's hearing record, South Dakota Governor William J. Janklow's July 14, 1983, letter to me.

I trust that any action the Committee takes with respect to non-point sources will reflect our careful consideration of the testimony presented today.

Office of the Governor
STATE OF SOUTH DAKOTA

William J. Janklow
GOVERNOR

July 14, 1983

The Honorable James Abdnor
United States Senate
309 Hart Senate Office Building
Washington, D.C. 20510

Dear Jim:

The Department of Agriculture and the Department of Water and Natural Resources have informed me of legislation under consideration authorizing a "Nonpoint Source Pollution Management Program." Nonpoint source pollution has been identified in South Dakota as a major source of pollution. I would like to take this opportunity to review some of the history of South Dakota's activities in the nonpoint source pollution area and to recommend a direction which we believe the proposed legislation must take.

South Dakota has been very active in cleaning up nonpoint source pollution. Initial efforts focused on agricultural sources as they affect lakes, but more recently our efforts have expanded to include groundwater protection as well as mining and construction site reclamation or treatment. Large multi-faceted implementation projects such as the Lake Herman Model Implementation Project or the Oakwoods-Lake Poinsett Rural Clean Water Program have had one common theme - they have relied heavily on local citizen interest and voluntary compliance. For individual cases where soil loss tolerances are exceeded, there are Soil Erosion and Sediment Control Ordinances administered by local conservation districts to pursue enforcement.

In the past, EPA 208 planning funds have been used in South Dakota to identify nonpoint source pollution problems, methods to correct those problems, and associated costs. These funds have also been used to fund local project managers to coordinate clean-up activities. Through the use of EPA 314 Clean Lakes funds and USDA Agricultural Conservation Program funds along with state and local dollars, some of the identified problems are being corrected on a voluntary basis.

State Capitol Building *Pierre, South Dakota 57501* *(605) 773-3212*

Although the EPA 208 funds have been phased out, this has not, unfortunately, been the case for nonpoint source pollution problems. South Dakota has numerous projects which require implementation. For example, please refer to the April 26, 1983, letter from Warren R. Neufeld, Secretary, South Dakota Department of Water and Natural Resources, concerning some of our highest priority projects which are ready for implementation. In addition there are urban, construction, mining and groundwater problems awaiting action.

If national legislation for a nonpoint source program is developed, the following points are recommended for consideration:

1. Each state must be allowed the flexibility to develop either voluntary or regulatory programs suited to each category of nonpoint source pollution. Nonpoint source pollution is difficult to regulate in comparison to point source pollution from municipal and industrial sources. Some activities such as mining are adequately covered by state regulation. Consideration should be given to providing incentives for the conservation of soil resources which will improve water quality. We believe Senator Durenburger's cross-media sanctions are too heavy-handed and should be revised to provide positive incentives rather than a cut-off from all federal financial and technical assistance.

2. Emphasis should be placed on the construction and maintenance of practices to control problems and on the assessment of progress at specific project sites through water quality monitoring.

3. Each state should develop a ranking of priority watersheds, and then target funds and technical assistance in those top areas based on the critical nature of the problem, relative impact to water quality, and benefits to be attained and not strictly on Water Quality Standards violations.

4. Liberal guidelines as to how each State will address its individual problems based on water quality and social and political attitudes unique to each State should be provided.

5. Reporting requirements and federal rules and regulations should be kept to a minimum. Because of the wide diversity in nonpoint source problems between geographical areas, the States must be given a flexible approach to controlling nonpoint pollution.

6. Develop a mechanism whereby federal agencies will be authorized to assist the State and local units of government in problem assessment and clean up of pollution sources. When it has been determined by a State that pollution sources originate from Federal land, the federal agency which manages that land must be required to clean up its problem. This may entail setting aside a portion of that federal agency's budget for nonpoint source pollution clean-up.

7. Restrictions on program allocations should consider the following: any percentage match requirement should allow for the use of other federal funds as match not to exceed a specified amount.

8. Interstate problem areas should be addressed by a mechanism similar to the Minnesota - South Dakota Boundary Waters Commission where officials from the two States meet to work on problems of mutual concern. For example Big Stone Lake which borders both States is currently being studied to determine its problems using 314 Clean Lakes funds and also funds from each state. A cooperative program between involved states rather than a mandatory approach administered by EPA is desired.

In summary, nonpoint source pollution is a problem of great magnitude in South Dakota, and a flexible management program is necessary to meet water quality goals. It must be emphasized that if funds are made available, the money should be used to correct problems and planning should be kept to a minimum. Thank you for your consideration.

Sincerely,

Bill

Mr. Abdnor

July 19, 1983

Mr. Chairman, the following Secretaries of Agriculture adopted a non-point source position paper during the 1983 Summer Meeting of the Midwest Association of State Departments of Agriculture:

Kent Jones -- North Dakota

Marvis Hogan -- South Dakota

Bob Raun -- Nebraska

Jim Boillot -- Missouri

Terry Strueh -- Indiana

Larry Werries -- Illinois

Dean Pridgeon -- Michigan

LaVerne Ausman -- Wisconsin

Jim Nichols -- Minnesota

Harland Priddle -- Kansas

Dale Locker -- Ohio

Robert Lounsberry -- Iowa

With your permission, Mr. Chairman, I wish to have included in the Committee hearing record a copy of their recommendations.

CLEAN WATER ACT

The Senate committee on Environment and Public Works will be holding a hearing on amendments to the "Clean Water Act" on July 19, 1983. Non-point source pollution will be addressed in the amendments.

Non-point pollution is of concern to all Departments of Agriculture in the Midwestern States; however, our feeling is that a strong regulatory program administered by EPA would only meet with farmer resistance and accomplish little.

Non-point pollution can involve a variety of sources including: mine site, urban areas, crop, forest and rangeland, construction sites as well as natural areas. Consequently, it is imperative that the states retain flexibility in administering any "Non-Point Source Pollution Management Program".

The ~~following~~ Secretaries of Agriculture recommend for consideration the following points:

1. Each state must be allowed the flexibility to develop voluntary or regulatory programs suited to each category of non-point source pollution. Non-point source pollution is difficult to regulate in comparison to point source pollution from municipal and industrial sources. For example; there are activities such as mining which are adequately covered by state regulation. Consideration should be given to providing incentives for the conservation of soil resources which will improve water

quality. We believe Senator Durenburgers cross-media sanctions are too heavy-handed and should be revised to provide positive incentives rather than a cut off from all federal financial and technical assistance.

2. Emphasis should be placed on the construction and maintenance of practices to control problems and on the assessment of progress at specific project sites through water quality monitoring.

3. Priority watersheds should be targeted based on the critical nature of the problem, relative impact to water quality, and benefits to be attained and not strictly on Water Quality Standards violations.

4. Allow liberal guidelines as to how each State will address its individual problems based on water quality and social and political attitudes unique to each State.

5. Keep to a minimum reporting requirements and federal rules and regulations. Because of the wide diversity in non-point source problems between geographical areas, the States must be given a flexible approach to controlling non-point pollution.

6. Develop a mechanism whereby federal agencies will be authorized to assist the State and local units of government in problem assessment and clean up of pollution sources. When it has been determined by a State that pollution sources originate from federal

lands, the federal agency which manages that land must be required to clean up its problem. This may entail setting aside a portion of that federal agency's budget for non-point source pollution clean-up.

7. Restrictions on program allocations should consider the following: any percentage match requirement should allow for the use of other federal funds as match not to exceed a specified amount.

8. Interstate problem areas should be addressed by a mechanism involving officials from both States meeting to work on problems of mutual concern, rather than a mandatory approach administered by EPA.

In summary, non-point source pollution is a problem of great magnitude. It must be emphasized that the majority of funds must be used to correct problems rather than spend more money on planning.

Senator **Stafford**. We will go immediately to the first panel which will consist of Mr. Bruce Ross-Sheriff of the Office of Technology Assessment; Dr. Edwin C. Clark, the Conservation Foundation; Mr. William C. Baker, executive director, Chesapeake Bay Foundation, Annapolis, Md.

Gentlemen, if you would come to the witness table, the microphones in this hearing room are not very strong, so we would ask you, when you are speaking, to get the microphones up close. We are going to have to hold you to the 5 minutes.

We might as well go in the order in which I announced your appearance, so that means, Mr. Ross-Sheriff, you will be first.

STATEMENT OF BRUCE ROSS-SHERIFF, OFFICE OF TECHNOLOGY ASSESSMENT

Mr. **Ross-Sheriff**. Thank you, Mr. Chairman, Mr. Bentsen. The Office of Technology Assessment is grateful for this opportunity to appear before you. I am the OTA Project Director for the assessment of the impacts of technology on U.S. cropland and rangeland productivity. That assessment, requested by this committee, was completed and delivered to the committee last year. A number of findings are relevant to your deliberations regarding nonpoint source pollution, and my purpose today is to summarize those.

The inherent capacity of U.S. croplands and rangelands to produce crops and forage is, on the whole, being gradually degraded. We have had surplus production from the land, and we face no prospect of food or forage shortages over the next several decades. However, most of the gains in overall agricultural production have been dependent on technologies using high quantities of fossil fuels. Thus, the increases in fossil fuel prices that occurred over the past decade have resulted in a renewed interest in protecting the inherent, renewable productivity of agricultural land.

During that same period, we came to understand that the factors that affect the ability of the land to produce crops and forage are the same factors that affect nonpoint source water pollution. The chief among these is soil erosion. It is the main cause of land productivity degradation and is a main nonpoint source of water pollution.

But the understanding of just how this erosion affects land productivity and water quality at a local or national scale is surprisingly imprecise. We know that water-caused erosion on non-Federal lands in 1977 totaled about 5 million tons. The largest share of that came from croplands. Wind erosion in just 10 States moved another 1.5 billion tons. Water erosion data are good enough to pinpoint specific sites where most of the erosion is occurring.

Much less is known about how soil erosion affects the long-term productivity of croplands, or where all these billions of tons of soil are going. The best estimates of soil formation rates suggest that cropland soils are probably being eroded at least 10 times faster than they are being formed. Techniques are being developed at USDA to assess more precisely the effect of soil loss of crop yields.

Techniques are already available to calculate how much of the soil goes where, but these have not yet been applied in wide-area inventories. A general rule of thumb is that about 25 to 40 percent of the soil moved by sheet and rill erosion becomes sediment in water bodies. The total soil from erosion that gets into the Nation's water bodies each year is probably or the order of 2 billion tons.

These figures probably understate the importance of erosion on water pollution. This is because the soil components that are carried farthest by running water are the water-soluble plant nutrients and the plant protection chemicals. Next come the lightest or most easily eroded solid soil particles, humus and clays, which are the parts of the soil that do the most to enhance soil fertility and that can cause eutrophication problems in the water bodies. A conservative estimate of the costs to farmers to replace the nutrients eroded from croplands into water bodies each year is $1 billion to $4 billion. Other estimates of the costs of erosion vary greatly. Resources for the Future, an economic analysis group that focuses on natural resources, in a recent study estimated that the land being lost to agriculture each year because of erosion probably is worth about $500 million.

Another finding relevant to the subject today is that erosion from croplands and grazing lands is very unevenly distributed. For example, 25 percent of the erosion from croplands occurs on just 2 percent of the land. The major finding of our technology assessment, and a finding that seems very germane to the legislation you are considering, is that production and conservation need not conflict. That sounds like something we thought we all knew. Certainly, farmers and ranchers will say they never doubted it. But it turns out to be quite different from the thinking that has often prevailed in conservation economics and U.S. agricultural policy.

This has led to an unnecessary dichotomy between conservation and production in agricultural policy and in technology development. However, our assessment is that, for many situations, technologies can enhance soil conservation and farmers' profits at the same time. Conservation tillage is widely recognized as having dual benefits. There are numerous other examples in our report.

For the most fragile lands with the highest erosion rates, profitable soil-conserving technologies to allow cultivation of annual plant crops or to allow intensive grazing, probably do not exist. However, we believe such technology could be developed if conservation were made a goal for research, development, and extension of new production techniques.

The implication of these findings for the legislation being considered by this committee are (1) that the long-term productivity of U.S. agriculture and the profits of U.S. farmers will both gain from more widespread use of practices that control erosion and sedimentation, and (2) substantial gains in control of nonpoint source pollution can be achieved with modest increases in Governemnt spending.

Senator **Stafford**. Mr. Ross-Sheriff, you can conclude at this point?

Mr. **Ross-Sheriff**. Yes, sir, I can.

In conclusion, I would simply say that we also found a most encouraging momentum in State initiatives and State responsibility for soil erosion control.

Senator **Stafford**. Thank you very much.

Dr. Clark, I guess you are next.

STATEMENT OF EDWIN H. CLARK II, SENIOR ASSOCIATE, THE CONSERVATION FOUNDATION

Mr. CLARK. Thank you, Mr. Chairman.

I am pleased to be here this morning to discuss some of the problems of nonpoint source pollution and its impacts on water quality in our streams, rivers, lakes, and reservoirs.

I am currently a senior associate at The Conservation Foundation, where, among other activities, I and my colleagues are completing a comprehensive study of the types of and economic costs of the impacts caused by sediment and other pollutants resulting from soil erosion. This study should supplement the one just completed by OTA.

This morning I would like to summarize for you some of the results of that study. They indicate that our failure to control nonpoint source pollution is imposing substantial economic costs on the consumer, perhaps measured in billions of dollars per year.

In my written testimony I have summarized some of the basic data on soil erosion in the United States. I might excerpt one of those facts to give an indication of the magnitude of the Nation's problem. We all know that the State of Iowa produces lots of corn. But it also produces a lot of erosion. In fact, for every one ton of corn raised by an Iowa farmer in 1977, 5 tons of soil were eroded by water from that State's cropland.

The majority of this eroded soil eventually reaches the Nation's waterways as sediment and once it is there it and the other pollutants carried with it, can cause serious problems.

The preliminary results of our study indicate that these problems are costing the Nation $2.5 to $3.0 billion a year. Some of these costs—15 to 20 percent—result from impacts commonly associated with water pollution; for instance, $40 million for increased water treatment costs, another $40 million for damages to inland commercial fisheries, and $100 to $500 million in damages to recreational opportunities.

But many of the costs are not normally linked to water pollution problems. For instance, about 25 percent of the costs are related to dredging. The Corps of Engineers spent $362 million in 1980 dredging harbors and navigation channels to remove sediment deposits resulting from soil erosion. These Federal expenditures are thought to be matched by like amounts spent for dredging by non-Federal sources including State and local governments.

The sediment is also filling up our water supply and flood control reservoirs, and this accounts for about 30 percent of the costs. Twenty percent of the capacity of new reservoirs on the average, costing about $300 million a year, is built for the sole purpose of storing sediment. An estimated 1 million acre feet of existing reservoir capacity is being filled each year by sediment. That capacity will have to be replaced or someone will be short of water.

Even if we could replace it at 1980 costs, the bill would come to some $300 million. In flood control projects and other small reservoirs, the project managers are able to remove the sediment and probably pay $200 million a year doing so. Finally, reservoir and lake owners are spending significant amounts—an estimated $100 million a year—to attempt to control algae, seaweed and other problems caused by nutrients which are associated with soil erosion.

The other major cost area is flood damages, accounting for 20 percent of the overall costs. Sediment-clogged channels flood more often, and the floods are bigger than they would be if there were no erosion. Even more important is the damage caused by the sediment; a major portion of urban flood damages are not caused by the water but rather by the sediment and other pollutants the water leaves behind. The sediment deposits also destroy millions of dollars worth of agricultural products every year and often reduce significantly the long-term productivity of the flooded land. The total of these sediment-related flood damages is probably about $600 million a year.

The final type of cost is the cost of removing sediment from drainage ditches and irrigation canals. These channel maintenance costs amount to an estimated $200 million a year.

Again, the sum of all these estimates is $2.5 billion to $3 billion a year. They do not include many impacts for which there is not enough quantitative information to make even crude cost estimates.

In addition to emphasizing that these estimates are still preliminary, I should also point out that even the most complete soil conservation or nonpoint source pollution control program would not result in these costs being entirely eliminated. Many of them are caused, at least in part, by "natural" erosion processes that can never be completely controlled.

Even so, I believe our study demonstrates the very high costs that the Nation is experiencing because it has not yet attempted to control nonpoint sources of pollution. If we are serious about attaining our goals of fishable, swimmable waters, we are clearly going to have to do something about these sources.

It is for this reason that I am pleased to see this committee taking a strong initiative to begin to address nonpoint source pollution. We know the problem exists, and, in most cases, we know how to deal with it. All we have lacked is a mechanism for focusing our resources on the problem and creating the incentives to deal with it in a coherent, expeditious manner. I believe that the so-called Chafee-Durenberger proposal being considered by this committee provides that mechanism.

Senator STAFFORD. Can you conclude at this point?

Mr. CLARK. Mr. Chairman, I appreciate the opportunity to testify before you this morning, and I would be glad to answer any questions.

Senator STAFFORD. I knew that Senator Durenberger would want you to get that line in.

We regret, really, the time constraints, but there are simply so many witnesses.

Mr. Baker, I guess you are next.

STATEMENT OF WILLIAM C. BAKER, EXECUTIVE DIRECTOR, CHESAPEAKE BAY FOUNDATION

Mr. BAKER. I have got a more advanced time piece here, so I will be watching your equipment up there, as well.

Mr. Chairman and members of the committee, I am William C. Baker, executive director of the Chesapeake Bay Foundation.

The Bay Foundation is a nonprofit organization. We represent over 13,000 members and have a paid professional staff of 32.

We are dedicated to the wise management of the Chesapeake Bay and to the preservation of the Bay's natural resources.

Nonpoint source pollution controls are important to us. For example, as part of our environmental education program, we operate a 300-acre farm in Prince George's County, Md., where we demonstrate the relationship between upland farming activities and downstream water quality.

At the farm, we are working closely with the Soil Conservation Service to implement best management practices. I am pleased to have the opportunity to testify in support of strong Federal action on nonpoint source pollution. I applaud your leadership, Senator Stafford, and Senator Durenberger, in promoting nonpoint source control strategies to clean up this Nation's waterways.

If we are seriously committed to objectives of the Clean Water Act, it is imperative that strong initiatives to reduce nonpoint source pollution be undertaken at once at the Federal, State, and local levels, and I emphasize Federal.

I must also emphasize, however, that based on past experience, we must realize that the Federal Government must take the lead. Furthermore, on the Chesapeake Bay, at least, we do not have the luxury of time. Now is the time to act if we want to prevent irreparable damage to this magnificient environmental and economic resource.

Nonpoint sources of pollution to the Chesapeake are, by definition, diffuse. For the Chesapeake Bay region, agricultural lands appear to be the principal nonpoint source of nutrients. The runoff from urban and other developed areas is, however, a matter of special concern because of the presence of large quantities of heavy metals and other toxic compounds. Such sources must not be overlooked.

The land use patterns in the Bay watershed are changing, and the nature of the change indicates that effective strategies for nonpoint source pollution must address both agricultural lands and developed lands.

Pollution from farming activies is primarily caused by runoff of top soil and the leaching of pollutants, including animal waste. The amount and nature of this runoff varies considerably with regard to such factors as tillage practices; slope of land; soil type; fertilizers and pesticides usage and livestock and feedlot management.

Although the amount of farm land in the Bay region has declined in the past 30 years, intense new farming practices have very dramatically increased loadings. Nonpoint contributions of nutrients from developed, residential and commercial land are, in terms of relative magnitude, less than those from agricultural land but still demand attention.

The principal reasons for not yet implementing nonpoint source controls on a broad nationwide scale involve lack of information, inadequate financial assistance and poor technical resources.

Another severe handicap is the lack of trained technical personnel. The local soil conservation districts and the Soil Conservation

Service have provided technical assistance to farm operators, including the identification of best management practices for an individual farm, but simply put, there is not enough money and personnel to get the job done fully.

In nonagricultural lands, there is a similar inability to curb nonpoint sources of nutrients due to lack of funding and personnel.

Let me now turn my attention to nonpoint sources of toxic compounds. Nutrient enrichment is not the sole factor contributing to the stressed condition of the Chesapeake. EPA and other Bay studies have demonstrated that in significant portions of the Bay, both the water column and sediments are severely contaminated by heavy metals and toxic organic compounds. The presence of these toxicants in the Bay system at these elevated levels is particularly worrisome in light of our limited understanding of their long-term chronic effects in water bodies. These toxicants are accumulating in the sediments of the Bay, available for resuspension by a number of different processes.

Runoff, primarily from urban areas, contributes huge quantities of toxic pollutants to the Bay system, and in my testimony, I have a table demonstrating some of the loadings.

Control techniques are available. Reducing toxic runoff will reduce toxic loadings. As with nutrient controls, there are a variety of best management practices that work effectively to control urban runoff.

Thank you, very much. Oh, my gosh, your timer is running a little slow.

Senator **Durenberger**. Keep talking.

Mr. **Baker**. Yours is running a little slow. I will continue.

Senator **Stafford**. That is a little bonus.

Mr. **Baker**. We must recognize that in existing urban areas, retrofitting such devices may prove prohibitively expensive. As the older urban areas undergo redevelopment, however—

Senator **Stafford**. Now, Mr. Baker, you can thank us again.

Mr. **Baker**. The opportunity to incorporate such plans may cause delays, but it will not prevent eventual installation in existing urban areas.

Thank you, very much.

Senator **Stafford**. Thank you, very much, indeed.

I should say that the chairman of this committee does have a considerable interest in the welfare of Chesapeake Bay since I, whenever I don't have to go somewhere else, spend weekends checking on the environmental situation over there.

I find the fishing isn't as good as usual in the northern part of the bay.

To be serious, if my colleagues agree, we will limit ourselves in this first round to about 5 minutes per Senator for questions.

So, Mr. Baker, it seems to me that you are, perhaps, unique among the witnesses who are here before us today. The Chesapeake Bay is the largest and most productive estuary in the United States, but it is in decline. Waters are otherwise affected by several States which have both large urban areas and large rural areas.

As I understand it, there will be no way to reverse the decline in the Chesapeake Bay's productivity until and unless nonpoint sources of pollution are controlled.

I think the question confronting us today is not whether to control pollution, but how and who will do the controlling.

Let me ask you bluntly whether, based on your experience in working with several States, local governments, urban, and rural interests and scientists, whether the States can do the job alone or whether there must be a Federal role. If there is a Federal role, must it take the form of the express requirements such as best management practices?

Mr. **BAKER**. I cannot emphasize highly enough that it cannot be done purely at the State and local level. We have had experience with other control measures, and it is always a matter of the Federal Government assisting the States and localities, but the Federal Government must take the lead.

I think best management practices are your primary method or mechanism to control nonpoint source pollution.

Senator **STAFFORD**. Thank you, very much.

Mr. Ross-Sheriff, your testimony seems to suggest that the high percentage of seed transport arises from a small percentage of the land and, further, that most of these problems in the given area may result from the activities of a small percentage of land owners, is that correct?

Mr. **ROSS-SHERIFF**. Yes, sir.

Senator **STAFFORD**. Does it imply that it may be possible for States to get good results from fairly closely focused program efforts?

Mr. **ROSS-SHERIFF**. Yes, sir, exactly.

Senator **STAFFORD**. Thank you. You are answering these questions the way we would expect somebody from the northern part of Vermont to. I like that.

Dr. Clark, the data you have presented is impressive. It seems to suggest that investment in nonpoint source controls are good investments; that there is a basis in real terms, both in terms of land productivity and Federal savings from less dredging and reservoirs and so on; is that correct?

Mr. **CLARK**. Yes, it is, sir.

Senator **STAFFORD**. Well, we are getting really short answers. I think I will yield now to Senator Bentsen.

Senator **BENTSEN**. Thank you, very much, Mr. Chairman.

I found the witnesses very interesting and helpful in what they commented on. I share your concern about the Chesapeake since I stay there myself quite a bit.

Senator **STAFFORD**. I know the Senator has had a boat over there also.

Senator **BENTSEN**. Sometimes I choose not to swim in it because of some of the very points that you have raised.

Senator **STAFFORD**. I have taken a few swims which I hadn't planned on.

Senator **BENTSEN**. Is the clock running?

Senator **STAFFORD**. We will correct that.

Senator **BENTSEN**. A lot of encouraging work has been done on tools. Would any of the witnesses testify as to which of these procedures or plans they think would be helpful in implementing nonpoint source pollution abatement, some of the things have been worked up in the ways of plans or tools?

I understand the concern, the problems, and the benefits. I want to find the practical implementation.

Mr. CLARK. I understand your concern, Senator. I might try to respond to it, because although I don't know whether to boast about it or complain about it, but I have read a number of 208 plans, probably 200 to 300 documents produced by them.

I think clearly there has to be a combination of approaches. I think many farmers, for instance, are ready to do what is needed as long as they know what is needed, and in these cases we are talking about an educational approach.

I think that others need financial help, and there is already a lot of that available. I think what is lacking is a coherent program to address——

Senator BENTSEN. I must say, when you say a lot of that is available but they need financial help, there has been a substantial curtailment and cutback in those appropriations.

Mr. CLARK. There has been, but I also think that in some cases, there is going to be more needed than just education and some financial help.

I think in some cases you are going to need a more aggressive program.

Senator BENTSEN. This budget squeeze that we are facing now makes that extremely difficult. To put into effect things that are mandatory by using other farm programs and then not follow through on the budget to help take care of some of the costs of compliance, you don't get total quid pro quo; you don't get a total benefit, I will assume.

Mr. CLARK. That is correct. But if I may add to that?

Senator BENTSEN. Yes.

Mr. CLARK. I think that the proposal, as I understand it, that is before the committee is one that allows the State substantial flexibility in taking its economic problems into account and only proposing management practices that are within the capability of the individual farmers, developer or whatever.

Senator BENTSEN. I don't read that into the legislation as it is now phrased, but I hope that, on review I can.

What are the best means to try to get the State and local taxing entities involved? Do you care to comment on that? How can we bring them along if we find practical solutions to some of these problems?

What do we have to do?

Mr. BAKER. At least in the Chesapeake Bay area, my one concern is that it hasn't worked on a volunteer basis, to date, very well, and part of that is because of personnel and money; I have an internal memo from the Maryland Department of Agriculture that makes that point about four times.

I think you are going to have to have some sort of mandatory controls and a method of providing State and local funds. I wouldn't be able to comment on the particulars in terms of how the taxing structure should be worked out, but I think it is necessary.

Senator BENTSEN. Would you say that you mandate contingent on funding being supplied for the participation?

Mr. BAKER. Excuse me, Senator?

Senator **Bentsen**. Would you say that any mandating of such programs would be contingent on appropriate funds for compliance being supplied? Would you anticipate that from the Federal Government?

Mr. **Baker**. I think that compliance funding or funds for compliance should be a part of the requirement for Federal cost sharing dollars, yes, sir.

Senator **Bentsen**. I have no further questions at this time, Mr. Chairman.

Senator **Stafford**. Thank you, very much, Senator.

Senator Durenberger?

Senator **Durenberger**. Is there any disagreement on the panel that nonpoint pollution now accounts for much and in some cases, most of the water pollution in the United States?

Mr. **Clark**. I think that's agreed to.

Mr. **Baker**. Yes, sir.

Senator **Durenberger**. Does anyone disagree?

[No response.]

Senator **Durenberger**. Is there any disagreement that studies, including demonstration projects of waste to reduce nonpoint pollution, have been going on for many years, in some cases, a couple of decades?

Mr. **Clark**. It has been studied for a long time, yes.

Mr. **Baker**. No disagreement.

Senator **Durenberger**. Is there general agreement that this is more than simply a pollution problem; in some cases we may be literally converting rangeland and cropland into wasteland through loss of top soil?

Mr. **Ross-Sheriff**. That's right.

Senator **Durenberger**. Is there also general agreement on the panel that the means of controlling nonpoint pollution are fairly well identified; that is, we know quite a bit about how to substantially, reduce nonpoint pollution?

Mr. **Clark**. In most cases, yes.

Senator **Durenberger**. Is there agreement that until and unless some action is taken to reduce nonpoint pollution, the soil loss and the water quality problems will continue?

Mr. **Baker**. Absolutely.

Mr. **Clark**. I agree with that; absolutely.

Senator **Durenberger**. Can any of you give us an estimate of how much it would cost to fully implement the 208 plans which have been written to date? I don't mean just the administering costs, but the actual cost of the nanagement practices that are included in there.

Does 208 come with a price tag that anybody can agree on?

Mr. **Clark**. I don't think it is possible to do that, Senator, at this point. The States often have not developed those cost estimates themselves, and nobody is under the national emphasis so far as I know.

Mr. **Baker**. On the State level in Maryland and Virginia, it is being struggled with in committees and task forces, but there have been no concrete figures arrived at.

Mr. Ross-Sheriff. It seems to be very possible to do it. It is the kind of thing that Resources for the Future, which has not addressed that particular issue, handle well.

Senator Durenberger. Can any of you tell us how much best managment practices, if fully implemented, would cost the average farmer or the average rancher or the average small town or the average large city?

Mr. Ross-Sheriff. In the case of farmers and ranchers, it depends, of course, on the nature of their land. For many of them, it wouldn't cost anything. In fact, it would improve their profitability. However, the lands of these farmers and ranchers are not the sources of most of the erosion.

I don't have a figure to say, in the highly erosive places, what the farmer would lose in productivity or what it would cost him in additional inputs to bring erosion down to some particular level.

Mr. Clark. That is, of course, going to depend on the particular situation. You may go from a notill or a conservation-till agriculture which can give an increase in the farmer's profit up to you may have to take the land out of production in order to reduce erosion.

Senator Bentsen. Would you speak a little louder?

Mr. Clark. I am saying the cost can vary substantially, depending on a particular situation on the farm; that in some cases you can accomplish what you need to by lowtill or notill or conservation tillage, which can actually increase the farmer's profits.

In other cases, you may be talking about more expensive measures such as terraces or even in extreme cases—and these would be cases where the productivity is probably not very high to begin with—you may have to take the land and put it into forage or some other year-round crops.

Senator Durenberger. The consequence of that is that for a lot of people adopting a best management practices standard within the very near term and given the economics, it might put some people out of business or at least change the nature of their business operations.

Is that not true?

Mr. Clark. I would not expect, as I understand the proposed amendment, to be——

Senator Durenberger. Well, my amendment does not propose best management practices. That is why I am asking you these questions.

Mr. Clark. Even if best management practices were adopted by EPA, I would not expect them to have that impact. I can see it causing some change in farming practices, yes, but I would not expect to see it put many farmers out of business.

Senator Durenberger. Mr. Baker, you can respond to both. Is there a problem in adopting the kind of standard that I suggested in my amendment which is sort of an averaging standard so that the people that are doing something better hopefully will continue to do something better unless you believe they will come down to the average and those who find it very difficult to get up to a best management practice might find it substantially less difficult to get to what we try to identify as average or practical or typical?

What are the problems associated with that kind of an averaging standard which clearly will vary from State to State and will depend on climatological factors and geological factors and we won't be able to impose one practice across this country?

The practice would differ from State to State to State, depending on the location of the land, the nature of the land, the climate and decisions made about practices in those particular States.

Does that present us with a substantial problem to adopt that kind of standard?

Mr. **Baker**. It may vary even among the States within the States, so an average might not be attained within a State for different practices, different types of watersheds, soil types, and that sort of thing.

To answer your first question on costs, we have our farm that I mentioned before, about a 300-acre farm that was very bad in terms of soil loss and pollutant runoff, and we spent about $30,000 in the last year.

I think we have made substantial improvements. I would be glad to—it is very close by, only about 40 minutes outside of Washington. We might be able to give the committee a tour sometime.

Senator **Durenberger**. Can we get there by boat?

Senator **Stafford**. I would be willing to get there.

Mr. **Baker**. The stream has filled in.

Senator **Stafford**. Any further questions?

Senator **Bentsen**. No, not at this time.

Senator **Stafford**. All right.

Well, gentlemen, thank you very much for your assistance to the committee. The Chair is going to reserve the right, if there is no objection, for all members of the committee to submit questions in writing, if that is agreeable.

Mr. **Baker**. Yes, sir.

Mr. **Clark**. We would be glad to. Thank you, Mr. Chairman.

Senator **Stafford**. The second panel will consist of Mr. Neil Sampson, executive director, National Association of Conservation Districts; Mr. D. B. Polk, member, 208 Water Quality Subcommittee, National Cattlemen's Association, Belton, Tex; Joe Antelley from the Texas Soil and Water Conservation Board from Temple, Tex., and, I understand, the fourth member is not here, Mr. Barlow from the Bar Cross Ranch, Wyoming Outdoor Council, Cora, Wyo.

Will the witnesses that are here please come forward to the witness table.

Gentlemen, you were here earlier and probably heard our request that witnesses limit themselves to 5 minutes for their oral testimony. The Chair is assuming that, Mr. Polk, you are one of those present, and Mr. Antelley, you are the other. Am I correct in that assumption? [Witnesses nodded yes.] We don't know which order you prefer to go in, so we will leave it to you to decide who goes first and who will clean up.

STATEMENT OF D. B. POLK, MEMBER, 208 WATER QUALITY SUBCOMMITTEE, NATIONAL CATTLEMEN'S ASSOCIATION

Mr. **Polk**. Sir, we only have two Texans here.

Senator **Bentsen**. I assure you, that is more than enough.

Senator **Stafford**. You will have to pull the mikes up fairly close, gentlemen, because they are not very good mikes, and we want our guests in the room to hear.

Why don't you go ahead, sir?

Mr. **Polk**. Mr. Chairman, members of the committee, my name is D. B. Polk. I am a rancher from Belton, Tex. In addition to serving as a member of the National Cattlemen's Association 208 Water Quality Subcommittee, I also serve as chairman of the NCA Resource Conservation Act Task Force and chairman of NCA's Forest and Rangeland Renewable Resources Planning Act task force.

I also, Mr. Chairman, am pleased that the Public Lands Council has endorsed and supports the position taken by the National Cattlemen's Association.

It is my pleasure to announce, sir, Mr. Lescoy, rancher from Elmore, Minn., chairman of NCA's 208 Water Quality Subcommittee, is present. The National Cattlemen's Association and I want to compliment this Senate committee for holding these hearings. It is reassuring to know you, like we, are vitally interested in controlling nonpoint source pollution. Congressional hearings such as these provide an opportunity for all interested groups to consciously and constructively work together to solve our problems related to nonpoint source pollution.

We are extremely pleased to have a part in these hearings, and we trust that our thoughts and ideas will merit your earnest consideration. Our comments will be restricted to the grazing land resource base of the United States.

The National Cattlemen's Association recognizes the need and the desirability of improving, maintaining, and protecting our Nation's land and water from erosion and sedimentation. It further recognizes that agricultural nonpoint source pollution does exist and a nonpoint source program is needed.

As stewards of nearly 61 percent of the land area of the United States, cattlemen feel a moral obligation to care for this land which is vital to mankind's existence now and which is essential for the sustenance of future generations of Americans.

We view conservation of our soil, water, plant and wildlife resources as a never-ending task. Members of the ranching industry have been carrying out the best management practices for many years to improve theirs and the Nation's quality in the environment. Significant improvement has been made under voluntary programs. It must be recognized that programs in some areas have attained success to the degree that nonpoint source pollution is insignificant. But in other areas, there is a need for continuous efforts to improve our environment.

The approach we have found to be most successful in implementing nonpoint source pollution control programs is based on a voluntary approach with education and technical assistance, and, where needed, financial assistance.

This assistance is made available through locally elected government soil and conservation districts. Water pollution abatement plans are developed with individual land owners within the framework of a comprehensive soil and water conservation plan for each farm and ranch in the district.

Full land owner involvement in this on-the-land planning process helps insure the full implementation of the plan thus developed with the landowner and not for him and is one he supports and is committed to carrying out on a voluntary basis.

American's animal agriculture is anchored in thousands of small family business operations across this great land and continues to serve as an impetus for economic productivity.

Every livestock farm and ranch is a dynamic ecosystem and an economic system. Our work toward achieving nonpoint water pollution control has kept these principles in mind.

Our industry has also taken a major initiative to inform all of our members on the steps to be taken in achieving water pollution control from point and nonpoint sources through a publication entitled "A Cattlemen's Guide to Water Pollution Control and 208 Water Quality Planning."

Mr. Chairman, I am submitting a copy of this guide developed by the National Cattlemen's Association for the record. (See p. 134.)

Senator DURENBERGER [presiding]. It will be made part of the record.

Mr. POLK. Our recommendations, sir.

Senator DURENBERGER. Well, my recommendation is that your time is up.

I have read your statement; I am sure the Senator from Texas has, and we will make sure that everyone reads your statement in full; particularly since you brought somebody from Minnesota with you, I will make sure that happens.

Thank you very much.

Our next witness is Mr. Antelley.

STATEMENT OF JOE ANTELLEY, MEMBER, TEXAS SOIL AND WATER CONSERVATION BOARD

Mr. ANTELLEY. Thank you, Mr. Chairman.

My name is Joe Antelley. I am an owner-operator and live on a ranch near Abilene, Tex. I have been a member of the State soil and water conservation board for 15 years. I have been involved in conservation leadership for over 20 years and actually been involved in the nonpoint source pollution program since the beginning of the early 1970's when it was introduced.

My printed prepared testimony will be in the name of Harvey Davis, our executive director. Under the circumstances, he could not be here, so I am substituting for him.

The Texas State Soil and Water Conservation Board is the agency responsible in Texas for the development and implementation of the agricultural and silvicultural nonpoint source pollution control program. We have an agriculture and silviculture nonpoint source statute approved by EPA which is based on a voluntary program through soil and water conservation districts. Our farmers and ranchers need a voluntary program, not regulatory. As you know, farmers and ranchers are in an economical bind. A lot of them are trying to stay out of bankruptcy, and so naturally an additional burden of regulatory power would not be advisable.

If nonpoint source programs are needed, agriculture/silviculture should be handled separate and apart from other nonpoint source problems.

Any agriculture and silviculture nonpoint source program should be based on grants to state soil conservation agencies to establish voluntary programs through soil and water conservation districts. The Clean Water Act recognizes the right of a State to make their own pollution programs. State soil and water conservation and soil and water conservation districts, agencies and districts have been working with farmers and ranchers for more than 40 years. They are thoroughly committed tc commence agriculture silvicuture nonpoint source control programs.

In Texas, as you know, we are a big State, some 160 million acres of agriculture productive land. It would be a tremendous organization to try to have Federal regulation powers in this State.

I thank you.

Senator DURENBERGER. And I thank you very much.

Mr. Sampson, you can take 5 minutes plus if you want.

STATEMENT OF NEIL SAMPSON, EXECUTIVE VICE PRESIDENT, NATIONAL ASSOCIATION OF CONSERVATION DISTRICT

Mr. SAMPSON. Thank you very much, Mr. Chairman.

My apologies for being late. This is a tremendous important piece of legislation before you today, and it is a pleasure for me to come and bring some views from the soil and water conservation districts of America.

Attached to our testimony today are three appendices, and I would ask your attention to the first one. Last week, in response to the actions that this committee was going to take, we took a rough survey of what was happening out in the 50 States these days on non-point source matters, and we were quite gratified by those results. They are the result of a phone survey, and the data is the result of whoever was on the other end of the phone, so I would not like to have them used as hard and fast numbers, but in virtually every State, we found that EPA had approved or conditionally approved an agricultural element; that there was, in fact, some activity on nonpoint source pollution that the soil and water conservation districts, the State soil and water conservation agencies were involved in and that a great deal of action and some considerable progress were under way.

These programs are of a lot of different types, as are the problems, but there are some features of them that are fairly typical of all. They have all been locally conceived as projects under the State 208 planning process. So they are locally initiated efforts, and the interesting thing is they are occurring today in the face of an almost total lack of attention to this topic on the part of the Environmental Protection Agency over the last 2 or 3 years.

The reading we get is that those folks out there have recognized that on many water bodies, nonpoint source pollution is still a serious problem; that there are identified ways of getting at it; that they understand both the problem and the cure and they are willing to do some things to move forward on it.

We think that both a solid commitment, and a functional institutional framework is out there. It appears to us, both from that survey and from talking to people, that this is true. But I don't think that we should believe that it is permanent. It is the sort of thing that has come through 10 years of action, but could wither away if not used.

It seems to me the Congress is at a very clear turning point right now. If you back away from the nonpoint problem for another 5 years, the initiative out there will have a very difficult time keeping its morale up and moving forward. So it does seem vital that the Federal Government take some sort of leadership role once more in encouraging nonpoint pollution control efforts. Moreover, no one should mistake the fact that a great deal of action is going on with the fact that enough is happening. I think it is clearly the case that a great deal more needs to be done.

But what is needed now is not massive amounts of money or heavy handed Federal intervention, but some encouragement for those State and local efforts to continue; some technical information; some assistance; some support; some modest cost sharing so that fiscally strapped State and local government and the conservation districts and other agencies that are working with them can move ahead on the things that they have pretty well identified need to be done.

We think the bill in the front of the committee is a good place to start. With that sort of an effort, we have suggested some changes in our third appendix which we at NACD have developed over the last week, and we would just like to mention a couple or three of those issues.

First of all, our draft language doesn't show it, but we really feel that it might be an important signal if this section were placed in the bill somewhere other than in section 208 section 303 is a possibility. The point is, this placement would indicate the new program as an implementation program which can pick up from where 208 was and carry forward with implementation efforts, not simply send the signal that we are going to continue the planning process forever and ever. That may be a minor, but important, signal in this bill.

At the same time, we would like for this legislation to make it clear that we are going to use the 208 planning process and not simply abandon it for whatever reason.

In most cases, we find the 208 process has established an adequate institutional framework. It has identified the things that need to be done and the best ways to do them. These are highly useful products that represents a tremendous potential for progress if we just simply tap in to them.

We have suggested that the States need to establish realistic goals and milestones and meet them. We are not so sure that a fixed timeframe for every State is realistic.

The Federal consistency issue is a very tough one, and we have mentioned a couple of things that may help.

First of all, Federal consistency with State programs is the law of the land these days. We have been at that difficult issue for about a decade, starting with OMB Circular A-95, and today we have Executive Order 123720, which is designed to make Federal agencies be responsible for at least considering State and local plans and programs and being consistent with them wherever possible.

This process is the result of a long and difficult political negotiation, and using it, and making it work right now, may be more productive than trying to reinvent something in this particular piece of legislation that would supplant it.

A hard and fast requirement for Federal consistency with local plans would suggest that there is never any local parochialism and that there is never any higher Federal goal or objective involved.

We feel that a program of the magnitude envisioned in your legislation is not going to solve all the problems out there; it is going to be used to address what is on the high priority list; what is doable. As such, it is going to find it very difficult to reach some of the overall goals for water quality in most states. There will be some goals that we may not have a chance to address in this time frame with such a limited effort. We may not, for example, meet water quality standards on an interstate stream as a result of having three or four nonpoint efforts upstream.

Those efforts may be laudable, but they may not change the instream water quality parameters in the time frames that we are talking about. So we have suggested that this particular program be an encouragement and incentive program, with most of the sanctions backed down or removed.

I hope that is not interpreted as saying that we want a program that doesn't seek to accomplish anything. It seems to us that the conservation community does want a Federal program that seeks to accomplish real gains in water quality.

We simply think this mechanism is the way to draw those gains out better and faster at this point.

Thank you, Mr. Chairman.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator **Durenberger**. Very good. Thank you. I am going to take my first 5 minutes to make a brief opening statement. As I indicated, I have been over everyone's statements, and I appreciate it a great deal, and I appreciate the testimony today.

I want to start by complimenting the chairman of this committee and the subcommittee and particularly Senator Bentsen for suggesting that we have this hearing as soon as possible and that we get a broad cross section of witnesses to testify, and that is, very simply, because, as you pointed out, Mr. Sampson, my amendment is not intended to cure all ill.

I hope we all got over that a long time ago that anybody in Washington can cure anybody's ill. The best we can do is try to find some means by which we can say, "Here is the way we think we ought to be going," and then let other people just help us decide how best to get there.

But in going over the testimony of the witnesses, it appears that there is sort of two basic approaches to solving this problem of nonpoint source pollution.

One, a group of witnesses takes the position that we can only be successful in our efforts to control nonpoint source pollution if the program is entirely voluntary, and I think there is at least two witnesses at the table here who take that position. They seem to be of the opinion that the Federal Government ought to provide financial incentives to farmers and ranchers and foresters and home builders to encourage better management practices, and they very rightfully point to the long history in this country of opposition to Federal land use regulation with which I certainly agree.

They cite progress over the last decade in laying the groundwork for better management through the planning programs in section 208. They fear that any new regulatory program will cause widespread resistance and undermine the progress that has been made.

That, to me, is wise counsel, and it ought to be considered in developing this legislation.

Nevertheless, there is also a strong case to be made on the other side. The Federal Government has been providing financial incentives and encouragement for soil and water conservation since the 1930's. It seems to me, if I am not mistaken, and I believe I am accurate on this, Mr. Sampson, we are about to celebrate the 50th anniversary of the Federal Soil and Water Conservation program. So we have spent billions of dollars on the effort already.

But soil erosion is still a very large problem, and it probably is bigger than it has ever been.

In fact, it seems to me, from testimony I have read here, that it is reaching crises portions in some parts of our country. Just last week, the Agricultural Committee of the Senate began work on sodbuster legislation lead by Senators from farm States, and I was in Montana a week ago, and I saw the farm that was in Time Magazine. But the Colorado and Montana Senators, again, are taking the lead in expressing the concern of most people in agriculture for that kind of legislation.

So it seems to me we have done planning, and we have done demonstration projects. We have put nearly a half a billion Federal dollars over the last decade into the 208 process. EPA and USDA have each conducted a series of demonstration programs, but today, we still lose $6.4 billion tons of soil through erosion every single year. There is no evidence that even though the loss is great, that the production is declining.

As grim as that news is for the future, as the United States is the world's food producer, that is only part of the story. The plain fact is that this Nation will not meet the goals of the Clean Water Act any time soon if we are solely on financial incentives to control nonpoint source pollution, and it is pollution. It is sediment; animal waste; pesticides; herbicides; toxic chemicals; lead; a variety of heavy metals. Pollutants flowing into the Nation's waterways where land is managed purely increase the margin of profit or to keep taxes down.

I agree that the Federal Government should provide funds for planning, technical assistance, demonstration, education and even in cases where it is not economically feasible for individual operators to install necessary control programs. But I cannot quite understand the argument that says that the taxpayer is obligated to pay to control the pollution. Should we tax the good managers to subsidize the manager and if we do, how many good managers are we going to have left when we are all through taxing?

How much practical progress will be made if the theory of the Clean Water Act is that we must pay people not to pollute?

So I am not arguing that the Federal Government should get into the business of land regulation, land use regulation; only that the States in this country need a new stimulus to implement plans that they have already been drafting with the help of those local incentives that a lot of you have talked about; that Federal agencies should not assist activities that cross purposes with those plans, and that regulatory efforts directed by local conservation agencies should focus on those who are now doing little or nothing to control the water pollution they cause.

Fifty years of conservation efforts convinced me that new steps are necessary, and that those improvements in the subcommittee amendments are reasonable.

I will turn at this point, having used up my first 5 minutes, to my colleague from Texas.

Senator **BENTSEN**. Thank you very much, Mr. Chairman.

My particular concern here is, as you have cited, the question of making it mandatory, the question of convocation of values by government edict. The point was raised by Mr. Clark that it might be necessary to mandate that, in some instances, a person quit farming insofar as the traditional crops that he is farming, and he put it, in effect, pastureland.

That is a government action that suddenly lowers the value of his property, generally substantially. You have the highest rate of bankruptcies in the Farm Home Loan Administration since the Great Depression. A lot of farmers have their backs to the wall, and I am not talking about windshield farmers, I am talking about third generation family farms.

I go out to west Texas in some of the areas where the most active business is the auction business where they are selling off those farms or the banks are foreclosing. I think we are all in agreement that something has to be done about nonpoint source pollution. I sure agree that we have been studying it for a long time, and we know ways to do it better. We ought to find ways to implement that.

I think the last witness stated it well when he said there ought to be encouragement to try to accomplish it. I know what happened on the flood plain and floodway situation where land that was worth thousands of dollars an acre was suddenly worth a few hundred an acre.

I had a man in my office yesterday who said, "What I want to know is, now that they classified my land as floodway land," he said, "and I had a barn burn down, I am now told that I have to get a permit to rebuild the barn." That is how far some of this has gone. And where he had a mortgage on that land based on the other values, all of a sudden, the land is worth nothing like that.

The same thing happens to farms; it happens to ranchers. Historically in this country we have used encouragement and voluntary programs in farming to develop the most productive farming in the entire world where today, one American farmer creates food for 70 to 80 other people. No other nation in the world compares to that.

The most modern of farming practice is taking place here, but we have to go further in trying to meet this problem of nonpoint pollution. But it seems to me the next step is encouragement to try to accomplish that and not what would become an overall mandating by the Federal Government and particularly at a time when we see an administration that continues to propose further cutbacks in soil conservation.

That is absolutely contrary to what we are trying to accomplish here, and to further increase the burden by government decree and by the Federal Government finally stating how the farmers' land can be used or the ranchers' land can be used, while cutting back on those Federal programs that assist them in that regard doesn't make any sense to me.

So I think that you have to go the route of encouragement in trying to accomplish these goals. If you do that, you have a better chance of some consistency on the part of the Federal Government, and to say that you are going to deny the rest of the Federal programs to force this coming of the decree, I think, would add further chaos to economic conditions of the American farmer today.

I would like to have any comment that you would like from any member of the panel insofar as what you think the economic results would be if these programs were mandated without Federal assistance.

Mr. SAMPSON. Well, I would take a shot at that. I think the mandating of compliance with nonpoint prevention measures from Washington would be roundly rejected by the agricultural community, and it would have adverse and serious adverse economic impacts.

On the other hand, let's not say that the encouragement from here of State programs precludes the notion that there will be some regulatory elements out there. There are 20 States that have erosion and sediment control legislation that have regulatory elements, and those were designed out there. There are many countries that have ordinances that are designed to protect their high priority areas.

Senator BENTSEN. I wouldn't argue with that, and I think that kind of delineation is good. My concern is the Federal mandate from here. What about any corresponding assistance to accomplish the goals where you get a convocation of values and a fellow has got himself a mortgage he can't chin at the present time.

Mr. SAMPSON. That would be rejected. We have been testifying over in the Agricultural Committee that when they are talking this sort of thing in farm programs, they are having farm programs that push farmers toward allowing soil erosion, and then they want to penalize them for doing what the Federal programs encourage. We have got to clean up our own act, it seems to me.

Mr. POLK. Mr. Senator, I will address one subject, and that would be the mechanical crisis that would be required on cropland. I want to use one example, a normal crop structure, which would be required in some cases, costs from $10,000 to $50,000. A small farmer in no way, whose income may not even be $50,000, cannot afford this type of a structure. The primary results of the structure is offsite benefits, not particular benefits to his individual farm.

Senator DURENBERGER. Mr. Antelley?

Mr. **Antelley**. I would like to comment on the financial structures you put forward a while ago, when farming is unprofitable, farming and ranching, I used to be a farmer. I decided, like you said, the farmers are feeding 47 people, and I looked around and couldn't find 47 people to feed, so I got out of it.

It might be a little late, too, but actually, I can't see a program problem if there is a profit in farming and ranching in doing a lot of work on conservation practices. We do not have a profit in that. I understand that we need to sell our calves at a dollar and maybe 10 cents to break even instead of maybe 70 cents a pound.

Senator **Bentsen**. Make it up on volume, then, in total.

Mr. **Antelley**. Well, I am not in that volume of category. But economically, if agriculture gets back stable with other economics and tried to get a profit into this, I think we will see a bigger move for conservation work and there will be a clean water improvement as Neil says. We have done a lot of good work in conservation. We have accomplished a lot. They have got a lot of clean streams that wouldn't be clean today. We see a lot of abandoned land that is eroding. That is not agriculture land. That is most time somebody's investment that is not agricultural. I think we stressed the point.

I'm a State agency man, but I'm also a rancher, and that is the way I make a living. We would like to see an accomplished program, but we also know you don't accomplish this on an individual basis, but it takes a guidance, a leadership. We know that the cost-sharing incentive coming from the Federal Government would be a tremendous asset, but we still would like to see the agricultural silviculture separated from other nonpoint source, but I think you will find that the 208 recognizes States controlling their pollution problems and we don't see why we would have to have agriculture or silviculture federally controlled and not locally controlled.

I think we have the means, we have the personnel, we have got the knowledge to do this if the incentive is good enough, and maybe if we get the profits back into agriculture so as to where it would be worthwhile.

Senator **Bentsen**. Thank you.

Senator **Durenberger**. Thank you. I think we have heard some good suggestions from the witnesses about how to make this a little bit more realistic. I want to try to find some common ground here on which we can stand. Because of the time constraints, we weren't able to get to Mr. Polk's reading his very specific recommendations, but one of them, No. 9, is, this is from NCA, we believe it is important to utilize already established terminology in the nonpoint source control program.

For example, best management practices is a commonly understood term and should be retained.

I am not sure that Mr. Polk and I have quite the same understanding of it. I might turn to Mr. Sampson and get his version, and then we will see where we stand. I started out looking at what I understood to be best management practices and saying boy, it is going to be tough to get everybody in this country to move voluntarily or mandatorially or any other way in any near term or the next 10 years to what I conceived as being best management practices.

So I made the mistake. I really should have gotten behind the original bill and gone for it, and said let's go to best management practices and then back off to something else.

But instead, I tried to start in the middle to try to find out what is realistic, and that is how I got to this sort of averaging concept. So I wonder, Mr. Sampson, was I wrong in backing off of best management practices when the cattlemen say we ought to go to best management practices? Is there something wrong with this averaging notion given the fact that we really are looking to the States to implement this program that, as the previous witness said, this program would operate differently from one watershed to the other even within a State, that climatological factors, geological factors, a lot of other things will make one watershed in Texas different from a watershed in Elmore, Minn.?

How do we reconcile this averaging notion in my amendment with the existing best management practices concept?

Mr. SAMPSON. My impression of the averaging thing was not that it was wrong, but that it was new. The best management practice idea had been so thoroughly negotiated in agriculture and silviculture and on urban nonpoint sources, that people are comfortable with it. The terminology "best" doesn't mean superlative. It means most feasible, and these practices have been identified in a dynamic negotiating process that hopefully is still going on in most places where they are still paying attention to the fact that technology changes.

Best management practices on some corn belt farmland in 1977 would have been terraces. Today, they would be conservation tillage, a methodology that wasn't even practical in 1977. We will hope that in 1987 there are some things that are more practical than some of the things we know now. The best management practice notion was a mechanism to find feasible ways that could be agreed upon, given the situation that we were working with at the time. It has proven a successful way to adapt practices to the land that will do the job of preventative maintenance.

I think that the BMP idea has gone so far that it is, in fact, best to let it continue, since it seems to me to be a dynamic search for what is most feasible. It is not a search for the Cadillac of treatments. It is a practical way to go about it. While I think your goal is laudable in looking at some sort of an average and not trying to hold everybody to an absolute and top standard, I suspect in the practical world, as these things have been negotiated out, the existing BMP's are much closer to what you sought than perhaps the wording would indicate.

Senator DURENBERGER. I guess one last question. The problem, as you see it—and I have heard the testimony of these gentlemen, and obviously they know their business well—the problem is more with not having a variable deadline, for example, or is it a problem having a deadline at all? I take it that separates the voluntary folks from everybody else, but you did, as I recall, in your oral testimony suggest to us that it might be appropriate rather than using this 48-month standard that we have in the amendment to find some way to go to a variable deadline.

Is there a practical way to do that?

Mr. **Sampson**. I was trying to put myself in the place of those people out there in the States who are coming in with a program to EPA. If they were forced to guarantee what they could get on the land in 48 months—given the small size of the program, given the very indirect link between any Government program and private landowners, and given the fact that just as we think we have got everything all organized, the economic situation changes and we start over again, I don't know how they would do that.

Given those indirect links, it was my concern that the 48-month thing may, in fact, be perverse; in that it may cause people to come in with the lowest common denominator approaches. These would be those practices that might happen in 48 months, but they might also not address the more difficult problems that are more indirectly linked, and where progress is a great deal more uncertain.

I don't pretend that what we have proposed is a full solution, but we suggest that you let the State tell the EPA what it considers to be legitimate milestones that it could and should make. Then let the EPA Administrator decide whether or not those are adequate achievements to warrant Federal financial involvement. EPA could then hold the State to those milestones. That, it seems to us, gives both EPA and the States the chance to look at different categories of pollution and recognize that there were different time frames and different problems involved.

Senator **Durenberger**. One last question. Was there any value in that concept of the economic waiver? I mean, Senator Bentsen obviously made a good point relative to the specific situations we are going to find ourselves in.

Did that have some value in trying to get this program implemented?

Mr. **Sampson**. Yes, I would have to suspect that it did, but I didn't get to the point where we figured out what we would recommend.

Senator **Durenberger**. Senator Mitchell, do you have any questions?

Senator **Mitchell**. No, Mr. Chairman. Since I was not present for the testimony of these witnesses, I have no questions.

Senator **Durenberger**. Senator Bentsen?

Senator **Bentsen**. No, I have no further questions.

Senator **Durenberger**. Thank you gentlemen very much for your testimony. We appreciate it a great deal.

Senator **Durenberger**. Panel No. 3 is Prof. Joe G. Moore, Jr., University of Texas at Dallas, and Dr. Robert Harris, Center for Energy and Environmental Studies, Princeton University.

Gentlemen, we welcome you, and we will take your testimony in the order that you were introduced unless you have made prior arrangements to reverse testimony.

Your full statements will be made part of the record, and you may proceed to summarize them in 5 minutes.

Professor Moore?

STATEMENT OF PROF. JOE G. MOORE, JR., UNIVERSITY OF TEXAS

Mr. **Moore**. Mr. Chairman, I am Joe G. Moore, Jr., a professor in the graduate program in environmental sciences at the University of Texas at Dallas, and a part-time assistant administrator to the mayor to the city of Detroit, Mich., responsible for bringing the Detroit waste water treatment plant into compliance with two consent judgments entered in the Federal district court of the eastern district of Michigan.

I appear here today, however, as a private individual expressing my private personal views and not those of the University of Texas at Dallas or the University of Texas system.

I also am a former chairman of the Texas water pollution control agency, a former Commissioner of the national water pollution control program when it was lodged in the Department of the Interior, and the former program director of the National Commission of Water Quality which made a report to the Congress in 1976 concerning the effectiveness of 1972 amendments to the Federal Water Pollution Control Act.

I do not intend to repeat the items that are covered in my statement. However, I would like to paraphrase those points. First of all, Mr. Chairman, it is important to remember that irrigation return flows are now part of the nonpoint sources by changes made in 1977 in the Clean Water Act through the definition of point sources in section 502 and the amendments to section 208.

Therefore, it is important to consider the fact that irrigation return flows do constitute a part of the nonpoint source contribution to the Nation's waters. Two major States in terms of irrigation of return flows are the States of California and Texas .

While the source of water for irrigation is often ground water rather than surface water, the return flow inevitably flow either to surface waters or into dry stream beds in some parts of Texas.

Second, it is important to remember that sediment is not only a pollutant in its own right but is a carrier of other pollutants that are contributed by industrial, municipal and agricultural point sources to the Nation's waters and, therefore, offers a means for distributing pollutants that do not necessarily originate from agricultural activities.

Also, urban storm water runoff remains a problem in metropolitan areas and, therefore, cannot be ignored when considering nonpoint source control programs.

Point No. 4: Section 208, in its implementation, has developed plans which contain strategies for nonpoint source pollution control, and those strategies undoubtedly require implementation over time.

As someone has already stated, substantial sums have been invested in the 208 planning process, and it would be unfortunate if the results of that planning process did not result in implementation of the recommendations that have been made in those particular plans.

Fifth, it is important to remember that improvements in ambient water quality in receiving streams resulting from point source controls can be lost, overwhelmed or negated by point source contributions.

The report of the National Commission on Water Quality contains several sections dealing with nonpoint sources of pollution and indicated that even at that time, some 7 years ago, it was anticipated that ultimate improvement in point source controls would be necessary. I have prepared and made available to the staff of the Committee extracts from the report of the staff to the National Commission. By the way, several Members of this Committee, and former members served, on that Commission. But I have made available the extracts that relate to nonpoint source pollution control. Since the nonpoint sources overwhelm or negate the contributions that have already been made by control of point sources, it is important at some point that there be a way to achieve nonpoint source controls. Obviously, the States, local communities and regions are in a much better position to know what the solution should be for those nonpoint source problens, but there is a Federal interest in seeing that the investments in both regulatory actions and substantial sums for construction of publicly owned treatment works are protected and that that investment realizes its ultimate improvement through some system that assures the control of nonpoint sources.

There has been some discussion about whether or not the program should be mandatory or voluntary. I would remind you that the original water pollution control programs were often voluntary, and some of the results were less than what was desired.

The Congress itself eventually came to a conclusion that it had to mandate point source controls. Progress has been made for industrial and municipal discharges, and now nonpoint sources will have to be addressed. Whether you manage to achieve mandatory controls at this juncture, I think it is inevitable that mandatory controls will have to be implemented to protect the investments that have already been made.

For those areas where the States cannot or will not undertake nonpoint source controls, I think it is also inevitable, as in the point source control program, that the Environmental Protection Agency will have, or should have, responsibility to secure compliance in order to achieve what are the national objectives and requirements as already prescribed in the act.

There has also been some discussion about deadlines. Deadlines were a major issue in the passage of the 1972 amendments and undoubtedly posed some problems, but Congress has solved those problems by adjusting the deadlines as new evidence has been presented to the Congress and as the program has moved forward in time.

There is a discipline to deadlines, and the discipline compels those that are responsible for compliance to move forward toward those goals.

Finally, point No. 8, Mr. Chairman, the question of Federal activities that conflict with approved State plans. This is not a new concept. It is already imbedded in some Federal statutes in the environmental arena—for example, the National Environmental Policy Act and the Safe Drinking Water Act—and it would seem that consistency, which has already been discussed here this morning, consistency at the Federal level would seem to suggest that the Congress should not, in one part of its activities, underwrite a program and then in another part of its activities foster programs that conflict with the first program that it underwrote.

Consistency, I recognize, is difficult to achieve, and recognizing the way the Congress is organized and functions, it is often difficult to get appropriations to conform to substantive statutory requirements.

Nevertheless, the effort for consistency nust continue.

Thank you, very much, Mr. Chairman.

Senator DURENBERGER. Thank you, very much.

Dr. Harris, this is 5 minutes. You know that.

STATEMENT OF ROBERT H. HARRIS, SENIOR RESEARCH SCIENTIST, CENTER FOR ENERGY AND ENVIRONMENTAL STUDIES, PRINCETON UNIVERSITY

Mr. HARRIS. Mr. Chairman, thank you, very much for the opportunity of appearing before your committee.

My name is Robert H. Harris. I am now a senior research scientist at the Center for Energy and Environmental Studies at Princeton University, formerly a member of the Council on Environmental Quality, and for the past 10 years, have been studying the impact of toxic chemicals on natural waters and, in my 5 minutes, wish to discuss the important implications of toxic pollutants from nonpoint sources on drinking water supplies and on the food chain.

The point sources of pollution are quite obvious, usually industrial outfalls and municipal outfalls that line virtually all navigable rivers and streams in the United States.

What, perhaps, is not so obvious are the nonpoint sources, although, over the past several years, the effects of urban runoff from streets, parking lots, filling stations, so on, agriculture runoff carrying organic matter, pesticides, nutrients, nitrogen and phosphorus, and more recently, contaminated ground water that discharges to surface streams are becoming more obvious sources of pollution.

The focus on nonpoint source pollutants by and large has been on the so-called traditional pollutants—the suspended solids, the biochemical oxygen demanding materials, the nitrogent, the phosporous, and relatively little attention has been focused on the nonpoint sources of toxic chemicals in our Nation's waters.

Studies that we did when I was a staff scientist at the Environmental Defense Fund first brought home this point to me.

In Long Island, as you may know, much of the storm water runoff is retrieved and infiltrated through man-made basins to recharge the ground water in those areas subject to development.

We at ther EDF were interested in the relative contribution of the toxic materials in the suburban runoff waters and the toxic discharges from sewage treatment plants. We conducted studies using the analytical methods of gaschromatography, mass spectrometry and observed that the major source of toxic materials recharging ground waters in Long Island was storm runoff, a source considerably greater than point sources of pollution even if they were all recharged to the ground water in that area.

The toxic problem takes two major forms in water:

First, the contamination of our drinking water supplies is perhaps the most obvious; and, second, the contamination of the food chain.

The importance of toxic chemicals in drinking water supplies has become increasingly obvious since the first studies conducted by the EPA and by ourselves in New Orleans and the lower Mississippi River in 1974.

The contribution of nonpoint sources cannot be underestimated. Studies have indicated that surface runoff from urban areas, in particular, carry a wide range of potential toxic substances into drinking water supplies, including the Mississippi River, as well as pesticides.

Indirectly, nonpoint source runoff also contributes to the toxic problem, primarily as it is expressed through the chlorination problem.

Let me briefly explain: We have now discovered, since 1974, that when we add chlorine to treat our drinking water, chlorine combines with the organic matter in the water, either naturally present or of pollution origin to produce a wide range of chlorinated compounds, many of which are known to be carcinogenic and others which are suspected of being carcinogenic or toxic in some other way.

Nonpoint runoff that carries organic chemicals directly into surface waters or indirectly carries nutrients, nitrogen or phosphorus, into surface waters can result in the production of organic matter as algae growing in those surface waters utilize the nitrogen and phosphorus. This contribution to the organic load in our Nation's streams and lakes contributes to the toxics problem because the organic load is directly correlated to the amount of chlorinated products that are formed when we disinfect water.

This is an indirect way in which the nonpoint sources runoff from agricultural regions, in particular, and in urban regions, as well, contribute to the chlorination problem and the difficulties of treating drinking water.

In addition, there have been a number of studies that have identified the contamination of fish with toxic substances from water, particularly pesticides.

I call your attention to the table on the next to the last page of my written testimony which illustrates the magnitude or the potential magnitude of this problem.

Based on some studies that we conducted in 1978 in which we looked at a number of compounds that were contaminating surface water, most of them, from nonpoint sources, particularly the pesticides like DDT, dieldrin, heptachlor, so on, we compared the daily intake associated with consuming that drinking water with the daily exposure associated with consuming fish obtained from those polluted waters.

In the case of fish consumption, we noticed that the daily intake of many of these toxic chemicals was on the order of 100 times the daily intake associated with the drinking of water that was contaminated with these same compounds. But we also noticed, a fact ignored in risk assessments that we do in this area, that breast feeding infants might be 5,000 times the concentration of these same contaminants.

Indeed, the concentration of these contaminants in breast milk exceeded, as is shown in table 2, the daily acceptable intake rates set by the World Health Organization.

So, in summary, I believe that nonpoint sources of toxic chemicals are significant in our Nation's natural waters, and I trust that this health component will not be ignored as this committee debates a regulatory program for establishing controls on nonpoint sources of water pollution.

Thank you.

Senator **Durenberger**. Thank you.

I will only question for 5 minutes.

Let me start with Professor Moore and ask you a question about voluntarism versus mandating. Apparently the notion of those who recommend a voluntary approach is that if somehow they were paid to do their voluntary thing they would do it. I didn't ask Mr. Polk, for example, the question of how he would like to see cattlemen taxed to help out national steel, which is sitting there behind you, eliminate their pollution or vice versa, but the problem with putting a lot of money into the process, obviously, is that you are taking it from someone else to get voluntarism.

Is that sort of an unfair approach? I mean, is it probable that we put enough money into some kind of grants program or whatever that we could combine it on a voluntary basis?

Mr. **Moore**. The question, obviously, of the availability of funds has affected even the municipal construction grants program; in other words, the money was available. As a practical matter, very few cities were ever substantially penalized because they failed to comply with the Clean Water Act requirements.

Let me just cite you the example of the people from the city of Detroit. As a result of noncompliance by the city of Detroit, the people are committed to an expenditure in excess of what is required under the law for Clean Air Act compliance that adds tens of millions of dollars to their cost of compliance. So the price for compliance in that case shows up in the rates they pay for water supply and waste water treatment.

Senator **Durenberger**. Obviously, money is an important factor.

Mr. **Moore**. That is correct, it is an important factor.

Senator **Durenberger**. People are willing in effect to tax themselves to some degree or in some form, either a direct tax, an assessment, user fees or whatever, is that correct?

Mr. **Moore**. That's correct.

One of the things that you inevitably would conclude, assuming you go forward with a program that requires a State to submit comprehensive programs—which I think at this stage is absolutely essential—one of the things you can conclude, however, is that within the timeframe of doing that, you, too, the Congress itself, will gain knowledge about the effectiveness of those programs.

I might also add along this same line that compliance with point source requirements by industry has not been without its costs. The Congress knew when it passed the 1972 and 1977 Acts that businesses would go out of business, because they required the Environmental Protection Agency Administrator to make a regular report, and the economic analyses that go along with the technology effluent limitations documents always assess the question of how many businesses in a given category would have to terminate doing business—that is, go out of business—as a result of the requirements of the Clean Water Act.

My point is, there have been consequences in an economic sense of complying with point source requirements.

Now, it is a hard question. I can understand that, and it may be particularly hard for the general agricultural industry at this juncture, but nevertheless, the Congress has enacted statutes already that have mandated the requirements that put people out of business. I don't know that any city has ever been put out of business, but nevertheless, a penalty has been paid by some cities for not complying.

Senator DURENBERGER. The last of your recommendations deals with Federal program consistency with a nonpoint source pollution program. We would have been used to that over the last 15 years, which a lot of us call federalism. If you want right turn on red, you threaten withholding of Federal highway money. If you want to get a change in alocohol consumption laws, which, in your experience in this field, how important is that tie, and is it something that we should really hang onto in the process of negotiating a resolution to this problem?

Mr. MOORE. I think so, because there is an advantage to having a requirement in the statute that says to the States that if you don't if you don't comply with the statute, there will be some consequence that falls on the State as a whole.

Whether or not the actual penalty is ever applied, there is a coercive effect that produces compliance in a margin of cases you wouldn't otherwise have. Now, I have some difficulty if you are going to cut off highway funds because air pollution control is not being met, and I have difficulty if you say, well, you didn't comply with the air pollution law so we are going to cutoff your water pollution control grants, but within a program itself there are ways, I think, that you can say to a State, "You are not going to get Federal money to continue to participate in this particular program unless you meet the minimum requirements imposed by the Federal Government."

Senator DURENBERGER. That is the problem that I have with some of the original language that I saw here, and I appreciate that comment very much.

Senator Mitchell?

Senator MITCHELL. Thank you very much, Mr. Chairman.

Professor Moore, we hear a lot about people from Michigan going to Texas. You are kind of an unusual fellow. You live in Dallas, and you work parttime in Detroit.

Mr. MOORE. We are trying to get some balance of the transfer of population. That is correct. There are a lot of Michiganders in Texas.

Senator MITCHELL. You said that you favor a program that is mandatory that includes a deadline for implementation, and as your response to Senator Durenberger to the last question indicated, that precludes Federal assistance to nonconforming activities. That seems to be a rather clear statement of support for the legislation that was reported out of the subcommittee and is now the subject of this hearing. Is that a fair reading of your statement?

Mr. MOORE. That is correct, and the reason for that is that I see nonpoint source pollution as the third component of a three-part approach in a national program for water pollution control. Point source control of industrial discharges, point source control for municipal discharges, and then I fear the loss of the advantages that are likely—that can be derived from those two parts of the program—if there is not a followthrough on nonpoint source pollution. I think it is inevitable that you will have to go farther with some kind of program that induces the States to produce adequate nonpoint source controls.

Now, I recognize there is a lot of progress being made. Ultimately, you will have to take care of the question of what happens in those places where adequate progress is not being made?

Senator MITCHELL. If you have not read the legislation carefully enough to answer this question orally at this time, I would ask you to submit a response in writing, and the question is, is there any provision in the proposed legislation which you would change were you empowered to write this law yourself?

Mr. MOORE. Let me respond to that in writing, if I may.

Senator MITCHELL. Thank you, sir.

And finally, the deadline for implementation in the legislation that Senator Durenberger first proposed was 4 years after enactment. Do you have any comment one way or the other with respect to that deadline?

Again, if you choose to do so, you may respond fully in writing.

Mr. MOORE. Well, let me just say at this juncture that the timeframe is not as important as the requirement that there be one, in my view, and a timeframe of 6 years might be all right, a timeframe of 2 years, I think, would be too short. But my point is, I think there needs to be a timeframe based upon your judgment as to having something that is a driving force to meet that requirement.

Senator MITCHELL. Mr. Harris, your statement described very eloquently the scope of the problem, but you did not comment specifically on the legislation. You are free to do so or not as you choose, of course, but we are here now dealing with a proposed bill that we have discussed within the committee or the subcommittee first and the committee before for some time.

Do you have an opinion as to the bill itself, namely, the principal elements being those which I have described or discussed in my colloquy with Mr. Moore?

Mr. HARRIS. Senator, I have not had an opportunity to study this legislation in detail. I was asked to participate last week in this hearing. I would be happy to provide my opinion in writing if you would like it.

Senator MITCHELL. Yes, I would.

Mr. HARRIS. I would be more than happy to. (See p. 220.)

Senator MITCHELL. And remember, as you do so, that the principal points in controversy are not whether non-point sources of pollution are a problem. There seems to be no disagreement on that. The principal points in controversy are how we deal with that problem, and within that program, should it be mandatory; should there be a deadline for State implementation? If so, what should that deadline be, and should there be a provision which would preclude other forms of Federal assistance for activities which did not conform with State plans in this regard?

I would ask you to address yourself to that in writing, if you could, at the earliest possible opportunity.

I don't know, Mr. Chairman, when we are likely to take this up. I expect it to be rather promptly.

Senator **Durenberger**. It is scheduled for next Tuesday.

Senator **Mitchell**. Well, we would like to have your considered judgment, but since it will be considered next Tuesday, it won't make much difference.

I would like to have it, if I could, before then. That will give you something to do this weekend, Mr. Harris. Thank you both very much for participating.

Senator **Durenberger**. Professor Moore, if you are going to elaborate on Senator Mitchell's question relative to deadlines, I would like you to deal with whether there is any precedent at all for a variable deadline. I can't think of any right off-hand, but the suggestion came from NACD, and it would obviously fit with the philosophy of the amendment. I just don't know that it is practical.

Dr. Harris, in your testimony you made some mention of toxic substances in fish flesh, and I was curious to know, probably, to clear the record appropriately, is this the flesh tainting which affects the marketability of fish, or are you raising a public health concern with it?

Mr. **Harris**. Well, I think it is primarily a public health concern. Of course, we all know that some areas have been placed off limits to fishing because of PCB or pesticide contamination, kepone, whatever; some due to point source discharges and some to nonpoint source.

The point I was trying to make was when we look at the relative risk associated with many of these contaminants, particularly those of nonpoint source origin, I believe we see that the risks are often far higher associated with consumption of fish and shell fish than the consumption of drinking water, and if you consider contamination of breast milk, then the health risks even are more dramatic.

Senator **Durenberger**. Could you tell us briefly again in your own opinion what would be the effect on public health in this country of not moving forward with the implementation of this?

Mr. **Harris**. Well, it is difficult to quantify in that I say that I think the toxic problem in water is 60 percent point source and 40 percent nonpoint source or visa-a-versa.

But from all the evidence that I have seen, I believe that the nonpoint source contribution of these chemicals is at least as great and perhaps a gread deal more serious than the point source contributions. So that a failure, whether it be through a voluntary system or through a regulatory system of deadlines, the failure to regulate the nonpoint source or to control the nonpoint source of toxic pollutants in water, I believe, would, assuming the point source controls were successful, would still leave us with an important and serious problem, particularly with respect to at least the contaminants in fish and the transmission of these materials in the food chain.

Senator **Durenberger**. Thank you very much for your testimony.

Professor Moore, thank you for yours. It was very helpful to us.

Dr. Mohamed El-Ashry, Director, Environmental Quality, Tennessee Valley Authority, Knoxville; Dr. Lee Stokes, administrator, Division of Environment, Idaho Department of Health and Welfare, Boise, and Senator Symms, who has been a valuable member of this subcommitte has an amendment coming up on the Floor so that he couldn't be here to introduce Dr. Stokes; Oustan S. Kibrack, director, Environmental Programs, Metropolitan Washington Council of Governments, on behalf of the National Association of Regional Councils; Bruce Hawley from the afternoon session to the morning and Mr. Lee Koppelman, executive director of the Long Island Regional Planning Board.

Did I get everybody right?

VOICE. Yes.

Senator DURENBERGER. OK. We are going to go in the order introduced except, I think we are going to do with Mr. Hawley after Dr. Stokes, so it will be Dr. El-Ashry, then Dr. Stokes, then Bruce Hawley, then the other two panel members.

You have 5 minutes apiece.

You may proceed.

STATEMENT OF DR. MOHAMED EL-ASHRY, DIRECTOR, ENVIRONMENTAL QUALITY, TENNESSEE VALLEY AUTHORITY

Mr. EL-ASHRY. Thank you, Mr. Chairman.

The Tennessee Valley Authority appreciates the opportunity to testify before you this morning.

My testimony is based on the experience TVA has had with nonpoint pollution since the 1930's. As a Federal agency with a regional perspective on natural resource management, TVA is interested in improving water quality.

National water pollution control efforts thus far have concentrated on point sources. As point source control requirements have been implemented, nonpoint sources are commanding a larger share of the remaining pollution burden of our Nation's waters.

In the Tennessee Valley, the most widespread nonpoint source pollutant is still sediment. Siltation of rivers smothers aquatic life, increases treatment costs for potable water supplies, reduces the flood carrying capacity of rivers, fills reservoirs, and depletes our valuable soil resources.

Excessive amounts of soil erosion from cropland, averaging 40 tons per acre per year and up to 200 tons per acre per year on some farms, are seriously affecting water quality and fisheries in western Kentucky, western Tennessee, northern Alabama, and northern Mississippi. This eroded topsoil has caused extensive flooding and swamping of formerly productive cropland and pasture.

In one eight-county area of the western part of the Tennessee Valley, more than $11 million of damage is estimated to occur each year to agricultural crops and timber resources. Runoff of pesticides, nutrients, and bacteria from agricultural activities has also caused concerns about nutrient loading in TVA reservoirs, and public health effects from degraded fish and water supplies.

TVA has addressed poor water quality from nonpoint pollution sources through its traditional role of research, demonstration, and participation in cooperative water quality improvement projects with other agencies.

In the early days, TVA was instrumental in reforesting millions of acres of badly eroding agricultural land in the Valley. In the 1960's, TVA placed emphasis on comprehensive demonstrations of multiple soil conservation and land management practices in larger watersheds. In 1979, we initiated with the Department of Agriculture a six-point program of demonstrations, educational efforts, cost sharing, and technical assistance in western Tennessee. In 4 short years, use of notill practices increased in the area from 40,000 acres to over 225,000 acres. On about 100 TVA demonstration farms, soil erosion has been cut by 74 percent, saving almost 1.2 million tons of topsoil each year. Crop yields have increased and production costs have gone down.

Mr. Chairman, abuse of land resources and failure to use wise land management practices stand out as the most serious and most neglected of major environmental issues facing this Nation, and nonpoint source pollution is merely a byproduct of this abuse and mismanagement.

It is TVA's experience that voluntary mechanisms for implementing nonpoint source measures simply do not work and that any benefits are only localized in nature. If the Nation is to meet the goals of the Clean Water Act, a national enforceable program for nonpoint source pollution is needed.

We believe such a program should include:

One, identification of watersheds where nonpoint sources are known to be major contributers to poor water quality, and the development of a priority list for resolving the impacts.

Two, a Federal presence. Many serious water quality problems in our Nation are interstate in nature. A Federal agency such as EPA should be given sufficient authority, needed funds, and the responsibility to oversee the preparation and implementation of adequate plans for improving water quality in priority areas.

Three, Federal, State and local cooperation, which is essential to focus coordinated efforts on high priority watersheds. In addition, State legislation or local ordinances may be needed to gain compliance.

Four, a system of incentives and disincentives, which is also essential to achieve the use of sound management plans. Tax credits, cost sharing and increase technical assistance may provide incentives to implement best management practices. However, restrictions on Government subsidies for those not implementing best management practices may be needed to insure that water quality improvements will occur in priority areas.

In our view, control measures for nonpoint sources of pollution have been developed, and many appear to be cost effective. The major impediment seems to be institutional in nature, and what is needed is a national commitment for cleaning up this major source of water pollution.

Thank you, Mr. Chairman.

Senator Durenberger. I thank you, Dr. Stokes, you are next on our list.

Welcome.

STATEMENT OF LEE W. STOKES, ADMINISTRATOR, DIVISION OF ENVIRONEMENT, IDAHO DEPARTMENT OF HEALTH AND WELFARE

Dr. Stokes. Thank you, Mr. Chairman.

I appreciate the opportunity to provide information on Idaho's nonpoint source program as it exists today and to suggest some ways that our failures and successes can help the Federal Government achieve a program of its own.

At the risk of some redundancy, I would like to make four very quick and simple points: No. 1, is that there is a serious nonpoint source problem in the West, and that problem deserves the attention of the Federal Government through legislation of some sort.

No. 2, the State of Idaho has already developed a voluntary cost sharing program that relates to agricultural pollution control programs.

No. 3, we believe that nonregulatory programs can work to prevent nonpoint source pollution if given sufficient time, funding and attention.

No. 4, we believe that Federal legislation on nonpoint sources, at least initially, must include implementation money of some magnitude. Perhaps the State's programs should be mandatory, but in our opinion, such legislation should absolutely not require regulatory programs at the State level for at least 5 years. After that period of time, there could be such requirements. Most nonpoint pollution in Idaho, other than agricultural types, emanates from the public lands, so that is where we concentrate our program for now.

Our written testimony talks about that and quantifies it to some degree.

Our 208 program identified, quantified and prioritized our problems in agriculture by stream segment, and while we were successful in securing Federal rural clean water funds for one project in one drainage, the Idaho Legislature chose to provide substantial State funding for a cost-sharing program in other priority drainages.

The Federal Government might be interested in our funding system. We use both the inheritance tax and the cigarette tax to fund our program. Basically, that means if you smoke, we take your money, and if you smoke until you die, we get the rest of your money.

It works fairly well.

Senator Durenberger. I see Steve Symms is trying to get rid of the Federal estate tax entirely. We will have to come up with something else.

Dr. Stokes. Perhaps this is a useful alternative.

Senator Durenberger. I will mention it to him.

Dr. Stokes. We have spent something over $5 million in a year-and-a-half in issuing grants to conservation districts, and they have cost shared that money at 15 to 75 percent with individual farmers.

We have reached 75-percent participation of landowners in the critical areas on a couple of these projects, which is pretty darn good for a year-and-a-half.

They have committed to a 10-year pollution control contract for this money, and that wasn't happening under the old soil conservation programs, in my opinion.

Really, not until the water quality goal was established by the Idaho Legislature and seed money was presented did these programs really reach acceptable levels of participation by the farmers.

In fact, I would like to point out that an Idaho legislator, that is, an ex-legislator, who is a farmer and has served on a soil conservation district board and on our advisory board for pollution control programs; has stated very clearly that in his opinion, this program is the first evidence of sustained activity, useful activity in soil conservation that he bas seen in 30 years.

That is his statement and not mine, but I think that is important.

While we haven't reached full participation on any of the projects yet, I think it is important to indicate the magnitude of the successes, and it is substantial. We have actually measured 60- to 80-percent reduction in sedimentation loads reaching our streams from those projects, and, hopefully, we will do better when we are able to work on all of the individuals within those pieces of geography.

We are seeing volunteer practices implemented by farmers without funding after they see the actual economic benefits that their neighbors are getting from various applications.

We would like, though, not to see Federal legislation which would require replacement of our volunteer and educational program with a regulatory approach right away, because we think that would destroy the momentum which still is going to need a little more time to build up and develop a sufficient snowball to get the job done without a regulatory program.

As a matter of fact, we think that a regulatory program fully implemented at the Federal level will probably cost more to monitor and operate than the $150 million that has been suggested for implementation funds anyway, and in that case, you wouldn't put a single dollar into the land, and it would still cost you the same amount. That, we would like to avoid.

We also think that the money, if it is appropriated, should not be used for framework level planning. If the States didn't use their 208 money to get this done, then they should use their own money, or they should use 205 money or something else. They should have a few years to do that, but everybody should have practices on the ground during that 4-year period: then, leave a year period of evaluation before a determination of the necessity of a regulatory program is done.

With regard to cross compliance, I think the concept is OK, but it is probably too complicated to be practical. I prefer to see the directions of each agency circumscribed by its own generic statutes rather than having one agency drive another.

Senator **Durenberger**. I think your time is up.

Have you had a chance to read the narrative description of my amendment as I proposed it? If you haven't, I would love to have you take a look at it, because I haven't heard anything contradictory in your testimony, and we have learned over the last month or 2 to look to our experiences in Idaho as a valuable resource.

So if you have the time to take a look at that, I would appreciate it.

Dr. **Stokes**. Yes, I would be glad to do that. I have seen several drafts of it, but I am not good yet at identifying which is which, but I think we may be unusual in the attitude of the various States in that we are ahead on some of these things and maybe not ahead of some of the others.

Senator **Durenberger**. Are you at the end yet?

Dr. **Stokes**. That is the end of my statement, Mr. Chairman.

Senator **Durenberger**. Thank you, very much.

We will continue with of Mr. Librach.

STATEMENT OF AUSTAN S. LIBRACH, DIRECTOR, ENVIRONMENTAL PROGRAMS, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGIONAL COUNCILS

Mr. **Librach**. Thank you, Mr. Chairman.

My name is Austan S. Librach, director of the department of environmental programs of the Metropolitan Washington Council of Governments. I appreciate the opportunity this committee is giving me today, as a representative of the National Association of Regional Councils to testify on amendments to the Clean Water Act dealing with nonpoint source pollution.

Most of the designated 208 areawide water quality management planning organizations, like the one I work for, are members of NARC. NARC strongly supports the efforts of this committee to address the problem of nonpoint source pollution.

We are especially appreciative of your and Senator Chafee's leadership on this issue. The adverse impacts of nonpoint source pollution on water quality is significant in many parts of the country, such as here locally on the Occoquan Reservoir, the Potomac River, and the nearby Chesapeake Bay. This problem is obviously too great to ignore any longer.

Our understanding of the nonpoint pollution problem, from its magnitude and causes to its cost-effective prevention, has increased tremendously since Congress first passed the Clean Water Act in 1972. State and areawide water quality managers, using techniques developed under 208, and other programs are now more able to determine where nonpoint source pollution is having a significant adverse effect on water quality and to identify workable solutions.

For example, since the early seventies, we, in the Washington area have made great strides in the identification and control of nonpoint pollution.

Early on we pioneered methods of establishing the magnitude of the problem in terms of individual land use categories. These methods were used to pinpoint nonpoint problems which were criticized to water quality in a local water supply reservoir.

These methods were later used to classify all watersheds in the Washington area in terms of the relative size of their actual and projected nonpoint pollution contribution to the Potomac estuary.

Finally, this same basic methodology was employed recently by EPA in its Chesapeake Bay program. Through a contract with a local areawide agency, estimates of existing and future nonpoint pollution levels for each river basis in the entire bay system were developed.

What we found for the water supply reservoir and the Potomac estuary was that nonpoint pollution accounted for a substantial portion of the annual nutrient load and that over time these loads would grow with increasing urbanization to the point where, without control, they would dramatically diminish the water quality improvements achieved through huge investments in point source control. Preliminary findings of the Chesapeake Bay program seem to indicate that the impact of nonpoint pollution is even more pervasive affecting, through nutrient overenrichment, huge areas of the Bay itself. Approximately 67 percent of the total nitrogen load and 39 percent of the phosphorus delivered to the Bay originates from nonpoint sources.

The Clean Water Act established a focus and rational decisionmaking process for the consideration of nonpoint source issues. Regional councils have been intimately involved in this process under the section 208 and 205(J) water quality management planning programs.

Through EPA's farsighted sponsorship of the nationwide urban runoff program regional councils have verified best management practices and gained valuable operational experience.

Councils now serve as key links in the nonpoint source management networks that include State water pollution control agencies, local governments, soil and water conservation districts, university technicians, and other government and private agencies.

In many respects, regional councils are becoming the nonpoint equivalent of "agricultural extension agents," providing homeowners, county planners and farmers with basic information on BMP's.

The control of soil erosion and runoff from agricultural lands has been a continuing priority of local soil and water conservation districts throughout the Potomac Basin for decades. Farmers can enter into long-term conservation agreements with local SWCDS to implement BMP's on their lands. There has been some success with this effort in the Potomac Basin. Above Washington on the Potomac 45 percent to 50 percent of all farmers have entered into conservation agreements. This past year, two major watershed conservation projects that involve comprehensive application of BMP's to protect water quality were initiated.

These projects included treatment of over 100,000 acres of cropland and pasture. In addition, conservation tillage techniques have been rapidly gaining popularity as an economical farming practice in the Potomac Basin.

First introduced in the early 1960's, conservation tillage, which relies on use of herbicides to control weeds and reduce both erosion and runoff, is now practiced by over 50 percent of all farms in the Potomac Basin.

Funding for implementation of nonpoint source control programs has fallen largely to local governments. In this period of difficult fiscal constraints, local officials must weight the benefits of nonpoint management programs against the benefits of all other services they must provide.

It is difficult to justify initiating or maintaining a nonpoint management program when local officials cannot make a compensating reduction in their expenditures for treatment facilities or operations.

The Clean Water Act presently does not allow any reduction in pollutant loadings caused by implementation of nonpoint souce management practices to be credited toward meeting point source loading requirements.

The lack of such incentives weighs the decisionmaking process toward initiation of construction grant type solutions where assistance is available.

Nonpoint source problems tend to be site specific in terms of the types of pollutants and best management practices that are most effective. These can best be determined at the local level through existing areawide water quality management agencies. NARC does not believe massive new nonpoint source assessments must be made, but there is a need to initiate or continue "implementation planning" of the kind where regional councils can act as "nonpoint extension agents." This will give life to adopted water quality management plans. In addition, NARC believes Federal and State funds should be made available to supplement local resources.

Senator DURENBERGER. You just ran out of time.

Can you move to the summary? Everyone's statement will be made part of the record.

Mr. LIBRACH. We have attached a copy of our proposals to this testimony. NARC feels the enactment of a national nonpoint source management program would be a positive step in addressing this important water quality issue. We urge the committee to include such provisions in the final version of S. 431. NARC appreciates the opportunity to testify before this distinguished committee and I will be glad to try and attempt to answer any questions.

Thank you.

Senator MITCHELL. I don't think that you were aware that he started to say that they support the Durenberger proposal.

Did you hear that?

Senator DURENBERGER. No, I didn't hear that, but I read it.

We had the reverse situation this morning where he got cut off right after the endorsement.

Thank you, very much.

Bruce, I guess you are next.

STATEMENT OF BRUCE R. HAWLEY, ASSISTANT DIRECTOR, WASHINGTON OFFICE, AMERICAN FARM BUREAU FEDERATION

Mr. HAWLEY. Thank you, Senator, and thank you for accommodating my scheduling difficulty. I would like to submit our statement. Much of what we had said in our statement is somewhat redundant of things that have been said already this morning.

Senator DURENBERGER. Very good.

Mr. Hawley, In our statement, we are calling for a demonstration program.

Senator **Durenberger**. Lee, could you hand your mike over to Bruce?

Mr. **Hawley**. We are calling for demonstration programs on a 4-year-time-certain basis recommending a $25 to $30 million a year Federal cost sharing program. What I would prefer to do, instead of covering the points in my statement, is try to respond to some of the points and questions that have been discussed already this morning, specifically, with relation to the compliance provisions. As a matter of policy and principle, we are against it, and I am not going to persue that. That is neither here nor there. I would like to, instead, speak of the practical ramifications of cross compliance and why we think it won't work. About half of the agricultural production in the U.S. operates under direct farm program structure at this time.

Likewise, half of the farmers in the country, half of the production is not subject to any farm program or any direct farm program benefits. The purpose of farm program benefits is to reward farmers for participating in Government programs intended to manage farm pruduction levels and supplies. They are not intended in their original inception, at least, to be a subsidy of farmers, notwithstanding how they have turned out.

In any event, farms, dairy farms, as an example, operate under a farm program that does provide a direct benefit to those farmers, but it does not do it by the mechanism of sending a check to an individual farmer. Instead, the Government supports the price of milk which, in turn, gives a market opportunity to the farmer at a favorable price.

The mechanics of withholding Federal support from an individual farmer who does not participate in average management practices or best management practices or whatever management practices we identify, the opportunity to deny an individual farmer those Government supports does not exist in the dairy program. It does not exist in fruits, vegetables, livestock production, pork production, poultry production. It only exists in certain congressionally identified commodities, things like corn, wheat, pea greens, cotton, rice, sugar, peanuts, and tobacco where there is a direct payment.

A second mechanism of cross compliance would be to talk about withholding Farmers Home payments or Farmer Home Loan opportunities, rather. Bear in mind that the Farmers Home Loan program is intended to be a loan of the last resort program. That is, when a farmer's back is to the wall, when he has been denied loans by two commercial sources, only when he is reasonably assured a failure will the Government give this man a Farmer's Home loan. For us to come along at this juncture and say that that man whose back is against the wall should be denied the help of the Government relegates that man to failure for sure.

Earlier this morning the observation was made that there have been instances where the Government's programs have put certain businesses out of business. Denying farmers home loans adds an extra burden to the man who is least able to withstand it.

Other committees of Congress are currently considering legislation to stimulate organic farming in the country. Organic farming is intended to reduce farmers dependence on chemicals, whether it is pesticides or wheat control technologies. Organic farming uses increased tillage as an alternative. At the same time, Congress is proposing to spend $6 million a year to stimulate organic farming, the requirements——

Senator **Durenberger**. How much?

Mr. **Hawley**. $6 million a year for demonstration projects.

Senator **Durenberger**. Whose State? Whose State is that? Sounds like an Emergency Jobs Bill.

Mr. **Hawley**. It is proposed legislation by Senator Leahy on the Senate side.

That legislation to encourage organic farming would be at direct cross purposes to this legislation to encourage what I think will end up being no till or conservation tillage. There are many inconsistencies between this Federal program and other Federal statutes unintended but of serious consequences.

Thank you, sir.

Senator **Durenberger**. Thank you very much, and thank you for taking the time your formal statement to react to other testimony.

Our final witness will be Lee Koppelman from Long Island.

STATEMENT OF LEE KOPPELMAN, EXECUTIVE DIRECTOR, LONG ISLAND REGIONAL PLANNING BOARD

Mr. **Koppelman**. Mr. Chairman, Senator Mitchell, my name is Lee Koppelman. I am the executive director of the Long Island Regional Planning Board and a professor of Regional and Environmental Planning, at the State University of New York at Stoneybrook. Dr. Harris referred to the 208 study on Long Island of which I was project manager which indicated that the major source of contamination of fresh surface and marine waters was due to nonpoint source pollution. As a result of that study, we were one of 19 areas selected by EPA to conduct a special program relative to the national urban runoff program.

Copies of that study were submitted to the committee. I hope that they have arrived in time for your review. I won't repeat any of the testimony that has already been grossly redundant, except to say that I do support the direction and endeavor that is carried forth in this proposed amendment to the act.

Senator **Durenberger**. That may be redundant, but not grossly.

Mr. **Koppelman**. After a half hour into the lunch hour, sir, everything becomes grossly redundant to me.

As to the act itself, I would like to make several brief observations.

First of all, the costs that are proposed in terms of Federal support are most modest in contrast to the billions of dollars already expended for point source control, and while these funds are releatively modest, I personally believe that the returns are potentially high.

For example, one of the results of our study indicated that we could significantly clean up the Great South Bay system. Since we are the world's largest producers of quality hard clams, we could, for $50 million, remove the nonpoint source pollution and thereby generate in excess of $200 million renewable resource industry. So

I think the cost effective nature of the proposed legislation is significant, indeed.

In fact, the land use and Better Management Techniques that were practiced, or at least planned for, in the 208 efforts conducted on Long Island indicate a far greater dollar return per dollar of investment on these sources of contamination control then on point source ones.

As for the bill itself, I thoroughly support the mandatory requirements and the consistency clause. I believe that voluntary compliance is too often a euphemism for noncompliance. I think that the Federal consistency clause, while it is difficult to implement, nevertheless posits a responsibility acceptance on the part of the Federal Government, whereas, in the past, States and localities who tried to improve their act often found that they were in conflict with individual departments or agencies of the Federal Government.

Therefore, the consistency clause, I think, is most positive. As to the specifics of the act, there are several elements that I personally feel are weak that I would like to comment on: Vis-a-vis; subsection D, there is language that indicates that the States, at their discretion, may assign some of this work or some of the cleanup responsibilities to their regions or localities thereof. I feel that the amendment would be much stronger if, in fact, there was the possibility that the Federal Government could negotiate directly with those units of States that have a responsibility and are willing to accept it.

The point I am getting to is that many States responsible for carrying out 208 work, in my opinion, did not carry it out. If it weren't for some of the regions within the States, I doubt if responsible 208 work would have been conducted. Similarly, in terms of this project—speaking strictly for the State of New York—if this is to be assigned to the State Department of Environmental Conservation, I have severe reservations as to whether or not the intent of the act will ever be complied with.

For example, the 205 funds, under a current agreement between EPA and the State, is managed by the State. Instead of using this fund for the type of hazardous material planning that it was designed for, they have used the funds to fill budgetary gaps in maintaining their payroll in Albany.

Therefore, I feel if some discretion is left in the proposed language that Congress may get better results from it.

In terms of subsection (d)(1), relative to the Federal contribution, I do not feel that 50 percent is sufficient to get any kind of compliance, voluntary or nonvoluntary. The experience of the 208 program where the initial contracts were 100 percent funded by the Federal Government prior to January 1, 1975, was a most significant catalyst. After that date, when the States had to go on a 75–25 sharing program, EPA had great difficulty in getting the States to participate as fully as they should.

From my own experience as a local government official, I know that I would have great difficulty in selling a nonpoint source program to the two county goverments if they were told that they had to put up 50 cents on the dollar. I believe that if there was a three-quarter/one quarter with a percentage of that one-quarter being allowed for in-kind services we could get compliance in terms of this program.

And the last point I would like to make, Senator, is that on Section(b), (1) A, there is an indication that perhaps the impact of nonpoint source pollution on drinking waters would be a concern. I would like to suggest that three words be inserted after "Identify those," and the words would be "Surface and ground waters." In places like Long Island and other similar coastal areas, the ground water, in some cases, is the sole source aquifer, and nonpoint source contamination to this aquifer is as serious as it would be to surface and to marine waters.

With those modest changes, the work that your committee has done so far I would applaud thoroughly.

Thank you.

Senator DURENBERGER. Thank you very much.

Mr. Hawley, at least on this panel, you appear to be the outstanding spokesman for volunteerism. I have a list here from the Congressional Research Service which I have looked over, and I can't find some projects I know about on it, but I know it's not a complete list of literally hundreds of demonstration projects of one kind or another that have been carried on all over this country.

I guess my question of you is, what is it, in your opinion, that we need to demonstrate that we have not demonstrated, and how long, in your opinion? I think you said four years.

What is it that we ought to demonstrate during the course of that four year period of time?

Mr. HAWLEY. There have been quite a host of management practices identified that have potential for reducing nonpoint source pollution from agriculture. Some of those management practices, as has been indicated earlier today, wouldn't cost the farmer anything, and, in fact, might make him money.

Other of the management practices are terribly expensive to implement. They would be effective for runoff control. The department can't afford to do them. The management practices that we believe can be demonstrated are the ones that make sense on the farm, in the context of not costing the farmer or making the farmer money, if you will, while achieving the dual objective of runoff control.

No-till is the one that comes most dramatically to mind and, within the past 5 years, the progress of no-till implementation in the corn belt has been dramatic. That has not been significantly matched in other parts of the country that has had serious runoff problems. In Kentucky, Tennessee, Louisiana, a demonstration projects on no-till might get a great deal done.

Senator DURENBERGER. But over 50 years of organized soil conservation, and I suppose, 150 years of unorganized soil conservation, we have come up with a variety of conservation techniques of one kind or another which a lot of farmers still aren't adopting.

So why do you want us to wait 4 more years?

Mr. HAWLEY. We are not proposing that we wait 4 more years. I want to make clear, we are not trying to structure a program that looks like something that doesn't do anything. We think something could and should be done.

The conservation program, the soil conservation program is not a runoff control program, first, and much of what we have done there was aimed at soil conservation, not of runoff control. They are, in some instances the same, and in some instances different things.

One of the reasons that soil conservation program has not succeeded, however—I will try to be direct to your question—is that the Government, for a variety of reasons, has siphoned major shares of that money off into nonsoil conservation projects. You can go to the Soil Conservation Service and get assistance in putting a pond on your farm for recreation purposes or a whole host of other things. About 5 percent of the total soil conservation expenditure actually ends up as cost sharing money on the land on croplands with erosion problems.

It doesn't work because it's not being used as effectively as it might be.

Senator **Durenberger**. OK.

Gentlemen, I regret that you all have to end up on the last panel. As Mr. Koppelman has indicated, we are into the lunch hour, so I will terminate my questions at that point.

Senator Mitchell?

Senator **Mitchell**. Thank you, Mr. Chairman.

I am going to ask each of you to submit a response in writing by the end of the week to five questions I am going to ask. Some of you have already answered them, so you need not respond where you have already answered, but they are very specific and deal with the legislation before us.

They are, first, should this proposed program be mandatory? Second, should it include a deadline for implementation by the States? Third, if so, what should the deadline be? Fourth, should the legislation include a cross compliance provision? And fifth, a question which I should have asked the earlier panel but did not, is whether it should retain the provision now included which authorizes a downstream State to petition the Administrator of the EPA to require any upstream State to develop an implementation plan compatible with the plan adopted by the downstream State.

I don't know if you are all familiar with that provision, but it, in effect, enables a downstream State to require an upstream State to adopt the plan of the downstream State, in other words, to keep elevating and so you could have that situation. In effect, there has been some previous discussion. Nobody has mentioned it today in your remarks, probably because they wanted to concentrate on other things, but that is something that I would like to have your opinions on concisely. We don't need a lengthy explanation. We just want to get some sentiment of what you as a cross section feel.

I know you have expressed some agreement and disagreement on it. That would be very helpful to me and to the committee. I just have one other question that is really off the point, but I have to ask Mr. Hawley, did I understand you to say that Farmers Home loans are available to a farmer only when he is reasonably assured to be a failure? I thought those were your words?

Mr. **Hawley**. Those were my words. The law requires that a farmer be denied credit by two commercial institutions as a precondition for eligibility to apply for a Farmers Home loan. It is, by law, the lender of last resort.

Senator **Mitchell**. Well, of course, a condition of denial by two commercial lending institutions does not mean that one is a failure, does it? I mean, that seems to be taking a rather large leap, there.

Mr. **Hawley**. I have acknowledged that you have quoted my words accurately. I probably did make a rather large leap there. However, the law was originally intended, as I described, for the man who would not survive absent Federal assistance. It has evolved a great deal since then.

Senator **Mitchell**. I want to discuss this, because that is off the subject, but the Farmers Home loan is a good project in my State; a lot of farmers who have received Farmers Home loans are good farmers. I wasn't here when it was written. I was glad you modified that.

Senator **Durenberger**. And a lot of nonfarmers as well.

Senator **Mitchell**. Yes. Thank you very much. You all have been very helpful.

Senator **Durenberger**. Thank you.

By way of clarification, I am informed we will not be having a mark-up on Tuesday. The Chairman made a commitment to a potential absent member, but it will not be next week. Regardless of that, if you could try to get your written responses to Senator Mitchell and any other matters of clarification that you would like to add to your testimony, if you can get it to the staff by the end of this week, it would be helpful.

Senator **Durenberger**. We will recess now until the hour of 2 p.m. this afternoon.

[Whereupon, at 12:38 p.m. the committee hearing was recessed, to reconvene at 2 p.m. the same day.]

AFTER RECESS

Senator **Durenberger** [presiding]. The hearing will come to order.

I will call the afternoon's witnesses to the witness table. The first is Harry Pryde, president of the National Association of Homebuilders; next is Dr. Jay Hair, executive vice president of the National Wildlife Federation; then Richard Gutting, Jr., vice president of government relations, National Fisheries Institute; Gil Radonski, executive vice president, Sports Fishing Institute; Robert J. Johnson, president of the North American Lake Management Society; Linda Bochert, executive assistant secretary of the Wisconsin Department of Natural Resources; and from this morning's panel, John P. Barlow, Bar Cross Ranch, Wyoming Outdoor Council.

Before we start with Harry, I will say that Mac Mathias is expected at some time within the next 45 minutes, and if he comes in while you are all still testifying, I will just let whoever is testifying conclude and then ask your indulgence to permit Senator Mathias' testimony, as well.

We may also, although Senator Simpson said we should have this hearing because he didn't like my language, he hasn't had the time today to be here, and he may only be present for your testimony, Mr. Barlow. We may have to try to do something with regard to our schedule today. Without further adieu, we will begin.

Let me also say that all of your printed statements will be made a part of the record. You will be asked to summarize them in 5 minutes. We will begin with Harry Pryde.

STATEMENT OF HARRY PRYDE, PRESIDENT, NATIONAL ASSOCIATION OF HOMEBUILDERS

Mr. **Pryde**. Mr. Chairman, I am Harry Pryde, and I am a homebuilder and developer from Seattle, Wash. I am testifying as president of the National Association of Homebuilders today. Our 111,000 members include thousands of land developers.

Senator **Durenberger**. 111,000?

Mr. **Pryde**. Yes, we are going up now.

Maybe 112,000 next month, but whose business is greatly affected by the enactment of the nonpoint source pollution control program. I will summarize my written statement and ask that it be included in the hearing record.

NAHB members have substantial experience with nonpoint source management practices on construction sites and on finished development sites. Our experience persuades us that management practices must be site specific to do the job right. Costs and effectiveness must be weighed. Some management practices lower develop costs, but most add costs which must be passed on to the home buyer.

We oppose the Chafee-Durenberger proposal as it is written. With some changes in the Federal and non-Federal governmental roles, we may be willing to accept it.

First, let me tell you what we agree with. We endorse State plans to allow for maximum flexibility in designing solutions appropriate for the State. Each State should be able to decide what its problems are and which regulatory or nonregulatory programs to use. We also agree with the use of existing areawide 208 plans and the concept of average rather than best management practices. Average management practices will help us keep costs low while reducing nonpoint source pollution substantially.

We recommend that each State be able to use an existing erosion and sedimentation control program or storm water management program to satisfy all or parts of the State plan requirement.

Where the existing program exempts certain known problems, they should be added to the State plan. Once the State decides on its program, decisions on which management practices to use should be made at the local level. Only at that level can we get the site specific decisions that will produce the best solutions.

In the Chafee-Durenberger proposals, we disagree with provisions that the EPA would approve State plans or write them for the State that does not do so. EPA's role should be to certify that the State has a program that addresses the problems in that State. EPA should not be in the position to judge the merits in the State program and to substitute its opinion of what is needed for the State's program.

For example, EPA should not be given the authority to require a State to have a regulatory program for certain nonpoint source pollutants if the State decided that a nonregulatory program was appropriate. In addition, we do not believe that the EPA has the capability to write and administer a State plan.

Even with the staff capability, EPA should not step into a role that properly belongs to the State. Additionally, we disagree with the Federal consistency provisions. It looks like a softly worded cross-compliance sanction in which Federal assistance will be withheld in order to force compliance with the State program.

We do agree that Federal construction programs should abide by the State programs. We also believe that the Federal expenditure should be kept as low as possible. The Federal deficit threatens the entire economy. Every program that adds to the deficit should be scrutinized carefully. There may be better ways to stimulate State and local action without relying heavily on Federal financing.

The administration has outlined ideas for the control of nonpoint source pollution that would place greater emphasis on State and local governmental responsibility. We encourage the committee to consider some of their ideas including State programs using 208 plans and demonstration programs which would be less costly but realistic measures to reduce nonpoint source pollution.

While progress has been made in controlling nonpoint source pollution, we realize that more work is needed. The State and local governments should continue to have chief responsibility for the development and implementation of nonpoint source controls. They should have complete flexibility in developing the programs so that they can devise solutions that are most appropriate for the conditions they face.

The Federal Government's role should be that of promoting nonpoint source programs. It can do it through demonstrations, limited financial assistance, education, and other means of encouragement. We strongly urge the committee to focus on the positive incentives rather than regulatory programs or sanctions because the positive approach is the best in the long run to reduce nonpoint source pollution.

I appreciate the opportunity to present our views, and I apologize for having to leave early to attend a meeting at the Commerce Department in a few minutes.

Senator DURENBERGER. Thank you for coming all the way out to the hearing. We appreciate your testimony a great deal.

Dr. Hair?

STATEMENT OF JAY D. HAIR, EXECUTIVE VICE PRESIDENT, NATIONAL WILDLIFE FEDERATION

Dr. HAIR. Thank you.

I am Jay Hair, executive vice president of the National Wildlife Federation. I appreciate this opportunity to discuss a major and unaddressed water pollution problem; namely, nonpoint sources of pollution.

The National Wildlife Federation, as you know, is the world's largest nonprofit conservation-education organization with over 4 million members.

On behalf of the following organizations, the American Clean Water Association, Clean Water Action Project, Environmental

Policy Center, Friends of the Earth, the Izaak Walton League of America, the League of Women Voters, the National Audubon Society, Natural Resources Defense Council, Sierra Club, and Trout Unlimited—I would like to take this opportunity to thank Senators Stafford, Chafee, and you, Senator Durenberger, for your leadership in proposing a program for the future based on the practical experience of the recent past. As you have heard today, the problem of nonpoint pollution is enormous, affecting some portion of all of the Nation's waterways. The Federal Government has spent almost a half billion dollars, most of it spent between 1976 and 1981, on voluntary programs and demonstration projects.

The resultant conclusion can only be that voluntary programs and scattered demonstration projects are simply not enough. If the Congress can do no more than offer States and individual sources other grant programs, we will be back before you in the next reauthorization period pointing to the continued preponderance of nonpoint pollution affecting the Nation's waterways.

We support the Chafee-Durenberger proposal because of its emphasis on State and local development and management. The three elements of the proposal are essential if there is to be a credible and effective national program of nonpoint pollution control. Those three elements are a date certain for implementation of management practices, Federal consistency with State programs, and, as a last resort, Federal implementation if a State fails to act.

Congress must insure some uniformity and equity for a national program that addresses a truly national problem. Congress is not asking individuals to do something which is good just for them. It is asking them to do something which is good for the health and welfare of the public and for the long-term health of the Nation's natural resources.

I would like to briefly explain why each of the steps in the Chafee-Durenberger proposal is a reasonable expectation that builds on programs already in place.

No. 1, the Chafee-Durenberger proposal is founded on the record that has already been developed at the State and local levels under 208 and other programs. States are advised, although not required, to draw upon the information they have submitted to EPA under 208 and other sources to target streams where the problems of nonpoint source pollution are the most serious and where the contributors of that pollution can be most effectively identified and the management practices to reduce nonpoint source pollution can be implemented.

No. 2, the Chafee-Durenberger proposal provides for development and implementation of nonpoint source pollution strategies at the State and local level with the involvement of such agencies as the Soil Conservation districts. This is appropriate and necessary because the rate of nonpoint source pollution depends on soil types and conditions, weather climate, topography, hydrology, all of which vary dramatically throughout the country.

No. 3, the proposal requires that States implement management practices within 4 years of enactment. This provides adequate time for the practice to be put into place while not delaying excessively the cleanup of water pollution. A date certain gives individual sources the certainty they need to plan for ultimate implementation. Only a date certain will assure fairness among sources and among States. It will give EPA the necessary baseline from which to measure the effectiveness of the program and report back to Congress.

No. 4, the Chafee-Durenberger proposal addresses the serious problem of transboundary nonpoint source pollution by inviting adjacent States to use EPA as a neutral arbitrator in these situations. States may petition EPA to see if adjustments should be made to an upstream State's nonpoint source pollution program to alleviate pollution flowing into the downstream State's water. This is a logical and essential role for EPA to play.

No. 5, the Chafee-Durenberger proposal prevents the Federal Government from pursuing financial assistance policies and programs which are inconsistent or interfere with State nonpoint source management programs. From the Federal perspective, there is an inherent logic in the Federal Government's not subsidizing practices and measures, on the one hand, that it is, spending money to control, on the other.

Federal consistency gives meaning to the State-led approach of the program.

No. 6, the proposal provides monetary incentives to the States and sources without linking the programs to the money. For many sources and States, abating nonpoint source pollution is its own financial incentive and reward. For some, money will make moving to better management easier and faster. It is important that the program go forward.

No. 7, the Federal Government cannot be completely absent from the design and implementation of this program. EPA must function in a review and approval capacity to be sure that Federal funds are used in a manner which will most effectively address the problems created by nonpoint source pollution.

In addition, EPA is uniquely situated to transfer and exchange between the States information and technology on effective measures for reducing nonpoint source pollutant loadings.

In conclusion, the costs to society of letting nonpoint pollution continue unchecked are high and simply unnecessary. The Nation is losing productivity from its land, killing fish, and destroying and degradating wetlands, as well as spending $300 million in dredging the resultant silt from our rivers, lakes, and harbors.

I urge this committee to adopt the Chafee-Durenberger nonpoint program. It builds on the knowledge and experience that has been gained over the last 10 years. It contains modest, reasonable, and responsible requirements for Federal consistency with State plans; a date for implementation of management practices and EPA oversight and implementation as a last resort. This committee can make the most meaningful improvement in the Clean Water Act for this reauthorization period by adopting a control program for nonpoint pollution.

Thank you, Mr. Chairman.

Senator DURENBERGER. Thank you very much.

The next witness will be Mr. Richard Gutting, Jr.

STATEMENT OF RICHARD E. GUTTING, JR., VICE PRESIDENT, GOVERNMENT RELATIONS, NATIONAL FISHERIES INSTITUTE

Mr. GUTTING. Thank you. I will see if I can beat the sand in your jar.

I am Dick Gutting, vice president of Government Relations, for the National Fisheries Institute. The institute represents more than 1,300 companies which harvest, process, and market fish and seafood products in this country.

We appreciate the opportunity to appear before this committee and present our views in support of the proposals to manage nonpoint sources of pollution. Over 200 different commercial species of fish and shellfish are harvested each year from U.S. waters. With proper managment, these resources can contribute significantly to our country's economic growth. Fish supply a high quality protein to eat, meal for animal feed and oils for a wide variety of industrial products.

In 1982, Americans ate about 8 billion pounds of commercial fish products. In terms of dietary significance, we estimate that fish accounted for about 9 to 10 percent of the meat protein in the United States. We also estimate that at least 90 percent of the population or approximately 200 million people are regular consumers of fish and seafood which is provided to them by the commercial fish industry. The National Marine Fisheries Service estimates that these consumers are paying more than $13 billion a year for these food products.

Fish also contributes indirectly to our food supply. About 35 to 40 percent of the tonnage produced by the commercial industry is used to feed animals and poultry which, in turn, are consumed by humans. In 1982, the United States consumed about 4 billion pounds of fish in animal feeds, pet foods, and other industrial products.

According to the National Marine Fisheries Service, our industry employs over 300,000 people. These people are engaged in fishing, processing, and wholesaling. Somewhat over 114,000 vessels and boats are used. These vessels harvested 6.3 billion pounds of fish valued at $2.4 billion at the dock.

The product is handled in over 3,500 shore establishments, and it goes on and on. Fishing is conducted in rivers, lakes, estuaries, bayous, coastal waters and thousands of miles from the U.S. shores. Two-thirds of the commercial catch, however, is caught in near shore waters and in internal lakes and rivers.

What is all of this worth? Well, it depends on how you look at it. The Government estimates our contribution to the gross national product is over $13 billion.

Pollution impacts our industry significantly. Nobody wants to take a chance eating contaminated food. Unfortunately, when marine pollution problems come up, information and speculation tend to be presented to the public in a disjointed and exacerbated fashion so that the average person has a difficult time understanding the true significance of the situation. Often times, the consumer demand for fish plummets as a result of sensational reporting in the press. The impact of pollution on our industry, therefore, is substantial, whether or not it causes a real or merely a perceived impact on fish.

We are told that hundreds of synthetic chemicals are present in urban bays and estuaries of the United States. Many of these areas are vital reproductive, nursery, feeding, migratory and residential areas for valuable fish and shellfish.

The potential severity of the present and future impacts of these pollutants on fishery resources is not fully known. We do know, however, that pollution can reduce the productivity of these fishery resources and certainly can render them unfit for human use.

For these reasons, we fully support and endorse the proposal to manage nonpoint sources of pollution.

Thank you.

Senator **Durenberger**. Thank you very much.

I was thinking as you were giving your testimony how simple it was for the Lord back in those first 7 days when he just went like this, and each day he created something which was beautiful and pure and clean and so forth, and now we have conplicated each other's lives substantially, although it has taken us a lot longer to do it.

We will go next to Gil Radonski. I think, Gil, when you are through, I am going to have to go vote.

STATEMENT OF GIL RADONSKI, EXECUTIVE VICE PRESIDENT, SPORTS FISHERIES INSTITUTE

Mr. **Radonski**. Thank you, Mr. Chairman, for the opportunity to appear before this committee and testify in favor of the nonpoint source pollution program.

By and large, Mr. Chairman, the Congress of the United States views recreational fishing as a frivolous activity and the industry that services the recreational fishermen as insignificant. To dispell both notions, I would like to state for the record that in 1980, approximately 42.1 million Americans, aged 16 and older fished. About 11.8 million youth, aged 6 to 15 also fished, for a total of 54 million Americans.

They spent $17.3 billion for recreational fishing. This figure, $17.3 billion, in expenditures translates into approximately 700,000 jobs. An additional $6 billion and 300,000 jobs can be added to those figures for the commercial fishing industry.

The figures for recreational fishing do not include the recreational value nor the value of the fish harvested by anglers. The point to be made is that recreational fishing generates significant expenditures to the national economy. When I was invited to testify before this committee, I was asked to state whether a national program to control nonpoint pollution sources is desirable either to protect water quality or preserve resources.

I can unequivocably state that a national nonpoint pollution source control program is an area of critical concern to the anglers of America and the industry that services them.

Public Law 92-500, the Clean Water Act, often referred to as the biggest public works project since the building of the pyramids, has consumed billions of dollars. From a fisheries 'viewpoint, those dollars were not merely spent, but invested.

There have been dramatic results in restored fisheries in all areas of the United States as a result of Public Law 92-500. But to date, the Clean Water Act has largely targetted on point source pollution. That is understandable. Point source pollution is easily defined and identified. Its effects are dramatic: Foul smelling discolored water with dead fish floating about is clearly polluted. In such cases, the pollutant can be seen flowing into the water. Control of such problems is a saleable issue in the political arena. Public Law 92-500 is testimony to that fact.

On the other hand, nonpoint pollution results in organic loading, salinization, pesticide contamination and increased suspended solids. Such pollutants are generally expressed in an insiduous fashion. Eutrophication is accelerated, resulting in a shift of game fish species to coarse fish species, the latter being less desirable to anglers. Salinization also causes a shift in fish species composition, while pesticide contamination can result in failure of game fish to reproduce and siltation can smother spawning habitat.

Inexorably, desirable fish species disappear over a period of time as a result of nonpoint source pollution, but the alarm is not triggered by dramatic expression.

A classic example of the preceeding occurred in Lake George, New York. Lake George had a naturally reproducing population of lake trout, a species highly prized by anglers. Over the years, anglers noted that small lake trout were no longer being caught. Investigation by New York State fishery biologists confirmed that natural reproduction of the lake trout had ceased. Further studies indicated that the lake trout were spawning normally and the eggs would hatch, but within a few days of the eggs hatching all the young trout died.

After considerable expense and time, it was found that DDT concentrated in the fat globules of the young lake trout's yolk sac, proved lethal when the fat was metabolized. This type of insiduous event can be documented in this case. The scientific literature has the documentation. The causes are chemical and mechanical, direct and indirect, and usually the cause is nonpoint source pollution.

DDT contamination was a nonsource point pollutant, and the damage had occurred unnoticed. If all the adult lake trout had died simultaneously and floated to the surface, a hew and cry would have gone up to stop the cause. It would have been a matter that would have been easily dealt with politically.

It has been said that all easy things to do are already done; only the difficult things remain. That is what we are discussing today, controlling dramatic pollution versus insiduous pollution. Controlling nonpoint source pollution, an expansive problem, will be expensive. It is estimated that it will cost $10 billion to control nonpoint source pollution in Chesapeake Bay alone.

The proposed language to amend the Clean Water Act to add a nonpoint source pollution management program is a step in the right direction to focus on the scope of the problem. The $150 million expenditure that would be authorized is a small investment to safeguard a fishery that generates $23 billion to the U.S. economy and provides a million jobs.

I would add that we think that this type of program, from a fisheries standpoint, should be a mandatory program. We are on the bottom end of the riparian flow, so to speak, and the money that is saved in agriculture by not employing these things is lost in the fishery end.

Senator DURENBERGER. Thank you very much.

We are going to have to take about a 12 minute recess. If anyone has a time problem, you can certainly be excused now, and I apologize for the fact that we can't continue this without a Senator.

[A brief recess was taken.]

Senator DURENBERGER. The hearing will come to order. Apologies from the Chair for my departure.

Our next witness, according to my list, is Robert Johnson, North American Lake Management Society.

STATEMENT OF ROBERT J. JOHNSON, PRESIDENT, NORTH AMERICAN LAKE MANAGEMENT SOCIETY

Mr. JOHNSON. Thank you, Mr. Chairman.

I am president of the North American Lake Management Society and I appreciate very much the opportunity to be with you today to comment on your proposal for a new nonpoint source management program as part of the Clean Water Act. Section 314 establishes the Clean Lakes Program of the Clean Water Act, and we also applaud the position and efforts of this committee to reauthorize this part of the legislation, as well. The brief comments I have are, for the most part, based on my experience with lake degradation and the Clean Lakes program. I have submitted a more comprehensive statement for the public record.

Lakes, both natural and manmade, constitute a vital ecological and economic resource to this Nation. Their total value is beyond realistic estimation, but certainly it rests in the many tens of billions of dollars. However, by their peculiar positioning in the transport pathway of water from the atmosphere to the oceans, and by their physical configuration, they act as excellent traps of sediment, nutrients, pesticides, toxic wastes, and urban drainage. They focus or concentrate these pollutants and dramatically show adverse effects.

The impacts include excessive algal production which can foster taste and odor problems in drinking water supplies and even death to small animals such as dogs and cats from toxins derived from some algae; over abundance of aquatic plants which destroys fisheries and in some instances becomes a hazard to unwary fishermen and swimmers; rapid shallowing of lakes, sometimes completely filling the basins and rendering them virtually useless for municipal and industrial supply; toxics contamination of the bottom sediment and water column frequently contaminating fish and other aquatic life and essentially destroying their usefulness as food for human consumption; and depressed dissolved oxygen concentrations in the lower levels of lakes or reservoirs resulting in species reduction and oftentimes elimination.

In short, lakes show directly the result of unchecked pollution to the Nation's waters. A July 1981 report by the President's Council on Environmental Quality on environmental trends noted that 85 percent of the Nation's lakes have pollution problems related to accelerated eutrophication, and almost half of these problems could not be remedied without nonpoint source controls.

I don't have comprehensive figures illustrating the economic impact of nonpoint source pollution, but I will provide some examples that give you economic appreciation of this problem. Many others are in our written testimony, and I refer you to them. Lake Apopka, a 33,000 acre lake in central Florida, once attracted people from across the Nation for water based recreation, and a fishery of national significance. In the last two decades, massive loadings of nutrients from agricultural activities have turned the lake into pea soup blooms of algae. The fishery has collapsed, recreation impaired, and tourism seriously affected. The price for restoring Apopka is put at $25 million. A similar situation is occurring in Ocean Lake, Wyoming.

The Port of Vancouver, Washington recently completed a massive $17 million restoration of Vancouver Lake. They removed approximately 10 million cubic yards of organic rich sediment most of which entered the lake from an agricultural watershed. Pollution control measures have been implemented in the watershed as part of this project to now preserve the lake resource. Is it worth it? The port indicates the investment will return $47 million.

Many lakes may be beyond in situ restorative manipulation. For these and others, it would have been more beneficial to control sources of nonpoint pollution prior to their complete degradation. Urban and rural best management practices are available and in many cases, if applied comprehensively, are effective in cutting total loadings and improving water quality. For example, in a small watershed near Raleigh, N.C., best management practices reduced sediment loss 99 percent, nitrogen loss 92 percent, and phosphorous loss 90 percent. Use of bufferstrips in Minnesota reduced solids and nutrients from animal feedlots by greater than 75 percent.

In both northern and southern Great Plains States, limited tillage has shown to reduce erosion and phosphorus delivery to rivers, and in Texas, it has been shown to increase profits threefold. First flush diversion of urban drainage and treatment have been used successfully in Florida to improve water quality. The use of natural and artificial wetlands to remove pollutants from storm drainage has been demonstrated in Minnesota and Florida. Sedimentation or detention basins for stormwater have shown to be effective in removing suspended solids by 70 percent, nutrients by 50 percent, and heavy metals by 70 percent.

The society believes a national program to control nonpoint source is desperately needed now to protect and improve our lake, river, and estuarine resources. We believe enough is known about the consequences of nonpoint pollution and that sufficient technology and management practices are available to combat this pollution; and we support your proposed program with minor modification.

First, the accomplishments of section 314 of the Clean Water Act, particularly the State lake classification surveys, should be clearly recognized under your proposed subsection b(1) and used by the States in setting priorities for nonpoint source control implementation.

Second, we strongly endorse the need to base identification of waters adversely affected by nonpoint sources not only on violations of applicable water quality standards but also on designated uses of the waters that are not attained because of nonpoint pollution.

Third, we encourage provisions for public participation in the process of developing a State's plan rather than merely a public hearing required after the fact. Fourth, we suggest that the proposed phrase "to reduce pollutant loadings resulting from nonpoint source," found in subsection (b)(2), line 9, be replaced by "to attain and maintain applicable water quality standards for designated uses when no applicable water quality standards exist." If the goal of the program is simply to reduce pollutant loadings, it will never prove cost effective.

Other comments regarding interstate nonpoint pollution control programs and authorization levels for the proposed program are included in our written comments but for the sake of time I will not discuss them here. In conclusion, we support the thrust of your proposal and we appreciate the opportunity to speak before you.

Senator DURENBERGER. Thank you for your testimony and the booklet.

STATEMENT OF LINDA BOCHERT, EXECUTIVE ASSISTANT SECRETARY, WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Ms. BOCHERT. Mr. Chairman, thank you for the opportunity to appear before you today in support legislation which addresses a matter of considerable significance to the longterm health of our Nation's waterways.

My name is Linda Bochert. I appear on behalf of the Wisconsin Department of Natural Resources and its director, Secretary C. D. Besadny. The Wisconsin Department of Natural Resources has broad environmental protection and resource management responsibilities.

In 1978, Wisconsin became the first State to enact a statewide nonpoint source water pollution abatement grant program. Although initial efforts in Wisconsin's water pollution abatement program were directed at the control of point source pollution, it soon became apparent that there was a need for a parallel nonpoint source control program.

The legislature and Governor recognized this need for a comprehensive point source/nonpoint source water pollution abatement approach and enacted the Wisconsin fund grant program which provided funds to cost share both point and nonpoint source control projects.

Since 1978, Wisconsin has appropriated over $21 million in State funds for the nonpoint source control program. The program is administered by the State's water quality agency, the Department of Natural Resources. And it is implemented by county level agencies, including county boards and county land conservation committees.

Wisconsin is internationally known for its numerous high quality recreational lakes and streams. This is due, in part, to our aggressive and long-standing point source control efforts.

We are also internationally known for our high quality agricultural products. We have more dairy cows than any other State. We are located in the northern Corn Belt, and also have several sizable urban areas. As a result, we estimate that about 40 percent, or 130 out of 330 delineated watersheds in Wisconsin, are in need of nonpoint source control projects.

These 130 watersheds include: Many of Wisconsin's trout and smallmouth bass streams; over 60 large, deep inland lakes located in the heavily populated southeastern part of the State; and the majority of the drainage area to Lake Michigan. Most of these lakes and streams are not at all impacted by point sources. Some are impacted by both point sources and nonpoint sources. In these cases, despite our best achievements with point source controls, the water pollution clean up will not be complete until the nonpoint sources are controlled as well. The types of nonpoint sources with which we are dealing include: Eroding construction sites in urbanizing areas; polluted stormwater runoff from existing urban areas; eroding stream banks, eroding croplands and manure from barnyards and farm fields.

The Wisconsin nonpoint source water pollution abatement program is comprehensive in nature. It addresses both urban and rural nonpoint sources which impact water quality. State funds from the program are used for financial, technical, and educational assistance. Landowners, land users, and municipalities are all eligible recipients of the financial assistance funds.

We have been asked today to specifically comment on the legislative proposal being considered by the committee, and in that regard, I would like to offer the following six points:

No. 1, there is a definite need for a national, comprehensive, urban and rural nonpoint source control program. Most importantly we see the need for a national nonpoint source water quality goal, especially for interstate waters.

There is also a need for some type of a Federal clearinghouse for the transfer of information among States, including sharing available and proven nonpoint technology. Without this transfer of information, duplicate efforts and studies will undoubtedly take place. Wisconsin would certainly welcome financial assistance in managing nonpoint sources, but any such assistance must be constructed in a flexible manner in order to supplement State efforts and allow each State to design an an appropriate program for its own needs.

Senator **Durenberger**. You may have to synopsize.

Ms. **Bochert**. No. 2, a nonpoint source program must be a water quality program.

No. 3, EPA should be the lead Federal agency in this program. It has the technical expertise to establish the water quality standards which are the foundation of the program and can best provide the necessary integration with point source control programs, as well as the research capabilities needed to deal with both urban and rural problems.

No. 4, we support the need for deadlines for the States to develop adequate nonpoint source control programs.

No. 5, we believe there is a need to authorize EPA to approve State programs and to be able to impose sanctions if the State does not develop an acceptable program. We specifically support the provision prohibiting Federal agencies from supporting or providing financial assistance for an activity which does not conform to the State's plan.

No. 6, in developing regulations for this program, EPA should recognize the need for using a comprehensive approach. Our experience has shown the advantages of assessing both urban and rural sources, implementing controls and evaluating accomplishments on a watershed basis rather than the case-by-case approach used in many point source program or the individual farm-by-farm approach used in many erosion control programs.

We applaud these efforts to establish a Federal nonpoint program. We believe it is an effort that is long overdue. Wisconsin is certainly no stranger to the role of leader in environmental programs, but we believe we have stood along in this particular field long enough.

We invite the rest of the Nation to join us in controlling the nonpoint sources of pollution to our Nation's waterways.

Thank you, very much.

Senator **Durenberger**. Thank you, very much.

I will turn now to our colleague from Wyoming to introduce our final witness.

Senator **Simpson**. Mr. Chairman, thank you, very much. I appreciate you having these hearings and the care and attention you give to it which is certainly indicative of everything you do in this place.

I would briefly very much enjoy introducing my friend, John Perry Barlow. He comes from many generations of Wyoming ranchers, in generations of conservationists, generations of stewards of the land, real stewards of the land, a very bright and thoughtful and persuasive gentleman with a great deal of energy and terribly creative and when not, I might add, Mr. Chairman, when not irrigating or cutting or moving cattle or haying or feeding, he even writes lyrics for the "Grateful Dead."

So that is John Perry.

Now, that is quite a gentleman, wouldn't you think?

Senator **Durenberger**. I won't let you go on for 5 minutes.

STATEMENT OF JOHN P. BARLOW, BAR CROSS RANCH, WYOMING OUTDOOR COUNCIL, CORA, WYO.

Mr. **Barlow**. Mr. Chairman, if I could possibly live up to that extraordinary recommendation.

My name is John Perry Barlow and I speak to you today on behalf of the New Fork Irrigation District of Cora, Wyo. I also believe I speak for the many farmers and ranchers in this country who place the purity of our water over short-term economic gain.

I flood-irrigate about 2,500 acres of hay meadow in the Upper Green River Valley, as four generations before me have done. You might say we're at the head of the creek in the Colorado drainage, and I am acutely aware that the water that crosses my land may one day flow from taps in Beverly Hills.

For this reason, I take pains to keep that water clean and heartily approve any programs which would inspire my colleagues to do likewise.

Nonpoint source water pollution control is so vital that argument on behalf of its merits hardly seems necessary. I would briefly point out an advantage to the amendment you are considering which may not have been mentioned.

I refer to the fact that a sound nonpoint control program will encourage agricultural practices which are prudent and discourage such short-sighted land exploitations as plowing up the high plains, overfertilization, and the irrigation of alkaline desert soils. Really, effective nonpoint legislation would be the best way I can think of to address an even more pressing problem: The stripping of America's precious top soil.

I also think that the Chafee-Durenberger amendment before you is, overall, a wiser Federal approach to a pollution problem than most. In passing it, you would be placing the responsibility where it belongs: At the State and local level.

Further, I would like to commend Senators Chafee and Durenberger for thier suggesting a standard of compliance based on normal agricultural practices rather than some misty-eyed ideal.

And, finally, while I share completely Senator Durenberger's distrust of cross-compliance as an enforcement cudgel, I am strongly convinced that the threat of EPA involement must remain in the amendment.

There is nothing which will motivate a recalcitrant legislature more rapidly than feds on the rimrocks.

All that said, I have a few caveats and suggestions I would comment to your attention before you engrave this thing in bronze.

First of all, I fear you may be a bit over-optimistic about the value of the 208 program findings. My own experience with the study that took place in Wyoming under that aegis does not recommend the unscrutinized implementation of its findings as though they were holy writ.

I am not alone in that view. In a recent conversation with Luna Leopold, former Chief Hydrologist of the USGS, I was told that he considered the 208 results "sketchy, inadequate, and, occasionally, misleading."

Let me share an example from my own experience. When the study was conducted in my part of Wyoming, it omitted completely any reference to the greatest source of siltation in the Upper Green, which is, as any local water user would tell you, the clearcutting of timber.

Similar omissions occurred in Rock Springs, and I could go on. But I am convinced that there may be many such cases where 208 did not provide us with the necessary data base for immediate adoption of control procedures.

For that reason, I would suggest some leniency and, indeed, assistance, should an individual State wish to conduct more detailed study before cracking down. I am not trying to buy time for polluters. But I do know that much of the hostility which has been directed at environmental measures results from their half-cocked implementation. Too often the legislative branch of Government has passed well-intentioned laws, congratulated itself soundly, and moved on to slay the next dragon without checking to see if the last one was really dead. This duty is usually left to a bunch of bureaucrats whose zeal for such regulations sometimes exceeds their commonsense.

Second, while I commend the extension of authority to the States in these matters, I am not sanguine about any State's ability to regulate the Federal agencies. And two of the major perpetrators of nonpoint polluting practices in my part of America are the Forest Service and the Bureau of Reclamation.

Others have sufficiently detailed the practices I am referring to, so I won't burden you with another indictment. I do think you are going to need something more specific than paragraph g on page 28 of the amendment in order to get these two agencies to act responsibly, because no one can evade a regulation better than a regulator.

Third, I fear that the uneven quality of the 208 studies may lead to inequitable distribution of funding if you stick to the apportionment formula outlined in the bill. It may be necessary for some States to conduct further studies for the reasons I stated a moment ago, and that will take money, and those additional needs should somehow be recognized.

Finally, I would like to mention the financial plight of agriculture, a crisis of which I am sure you are all aware. I expect you are going to find that many polluting farmers are incapable, for monetary reasons, of correcting the error of their ways, however much they would like to. I certainly don't want to reward the absence of virtue, but I would like to suggest that some funding be earmarked for low interest loans specifically designated for agricultural pollution control. This amendment simply won't be worth a hoot without enthusiastic agricultural support, and you are a lot likely to get that with incentives than penalties.

There is a lot more than I can say in 5 minutes. Let me close by thanking you for your kind attention to the views of an ordinary rancher and by reiterating my support for your efforts to control nonpoint source water pollution. The problem is big. The problem is diverse, amorphous, and almost intractible. But we have, as a Nation, no alternative to solving it. And the absence of alternatives should make braver men of us all.

Thank you.

Senator **Durenberger**. Thank you, very much.

As I warned the panel, we were going to be visited by a distinguished guest, and at his arrival we would take 5 minutes to hear from him. So maybe if we could have him sit right in the middle, we will invite our colleague, Mac Mathias from Maryland, to come right up to the middle and provide us with his expertise.

Welcome.

You have been with us most of the day, and we thank you.

STATEMENT OF HON. CHARLES McC. MATHIAS, JR., U.S. SENATOR FROM THE STATE OF MARYLAND

Senator **Mathias**. Thank you, very much, Mr. Chairman.

I apologize very much for being later than I was scheduled to be here, and I apologize to the panel for interrupting. However, it is my good fortune to be able to hear the statement that has just been made, and I am grateful for that.

When Senator Simpson introduced the witness, he pointed out that he not only threw hay for cattle, but he wrote lyrics for the "Grateful Dead."

I wondered, which is the more profitable enterprise?

Mr. BARLOW. I think you can guess.

Senator MATHIAS. Well, Mr. Chairman, so that I don't intrude upon the panel, I would simply say that this proposal recognizes the preeminence of the State's expertise in knowing what and where their critical nonpoint problems are and that it defers to their good judgment.

I think this is exactly as it should be.

The EPA Chesapeake Bay program identified both rural and urban runoff problems, several kinds of pollutants, and it pinpointed critical areas where those pollutants are most serious.

I think the identification of problem areas fits very nicely into the nonpoint proposal before the committee. I think that is the gist of my message to the committee today, Mr. Chairman, and with your permission, I will submit my full statement for the record.

Senator DURENBERGER. Thank you, very much.

Are there any questions of Senator Mathias?

Thank you, Mac. We appreciate it very much.

We have several sort of semi-experts here, that is, two Senators who put boats in the Chesapeake Bay, and it is awfully nice to have someone who can represent the area on a full-time basis.

Senator MATHIAS. I can report to Senator Chafee that as of lunchtime, there were still a lot of rockfish left in the bay.

Senator DURENBERGER. Let me thank the panel, as we start our questions, for all of the effort that went into their testimony.

The statements, as I indicated, will be made part of the record and will be most helpful to us in coming to a conclusion on this matter.

I have a question of Miss Bochert from the Wisconsin experience. You indicated your support for program development deadlines and EPA intervention in the event those deadlines weren't met.

There has been some amount of opposition raised to these provisions by several witnesses who were here this morning, and you obviously believe that most States, including Wisconsin, are in a position to move forward on a timely schedule.

What kind of State participation do you believe we could expect if we didn't have deadlines and schedules and the possibility of EPA intervention?

Ms. BOCHERT. Senator, I would like to think that you would have full State participation, but I am afraid I am one of the bureaucrats the gentleman at the end of the table referred to, and as a representative of a regulatory agency, it has been my experience in the point source control program that the possibility of EPA intervention and the role of EPA oversight on the deadlines in that program were, in fact, quite instrumental in the State of Wisconsin's experience, and from what I saw in other States' experience, as well.

It seems to me that if the States are interested in moving forward, deadlines are certainly not a disincentive to them, but if the States are not interested in moving foward, deadlines and EPA oversight can, in fact, be a necessary inducement, and from our standpoint, they would certainly be a necessary ingredient to the program.

Senator **Durenberger**. You have all heard the old joke about the Sahara Forest. I come from the land of 10,000 lakes, and the truth of the matter is, it used to be 15,620 or something like that.

Part of the problems that we have heard all year long, and I am sure preceded me on this committee in terms of State implementation of any of these programs, is lack of resources. I wonder if you would deal just briefly with that issue, because we heard two kinds of testimony here today: One, somebody earlier this afternoon who had to leave said $150 million is too much to run one of these programs when we have to balance the Federal budget, but this morning, everyone was saying there is not enough; if you don't put enough resources against this, you don't get the job done.

Several people, I think, concluded that it isn't so much a matter of what the Federal Government puts into it; it is a question of, is there a commitment to put individual resources, State or local resources and Federal resources, put it in the right combination.

We have heard a lot about the fact that the States and the local governments are in a terrible bind and cannot deal with the implementation of these problems. I wonder if you would comment briefly on the adequacy of the financial commitment we propose here and how that would meet up with a comparable commitment at the State and local level.

Ms. **Bochert**. I would make a couple of observations about that, Senator.

First, I think it is necessary to have both Federal and State financial commitment to this program, and just for your own information, despite the fact that the State of Wisconsin is in as difficult budget circumstances as a great many other States are, in this last annual budget process which concluded about 2 weeks ago, the commitment of the State of Wisconsin to its own nonpoint source program is now estimated at $5.5 million for the 1984–85 portion of the biennium, which has grown from $1.3 million in the 1978–79 budget.

So, from our standpoint, we see a continuing State commitment to our own program.

It is difficult for me to know, since I didn't do the calculation, what something close to 1 percent based on a ratio of $150 million would mean to the State of Wisconsin as a supplemental appropriation under the Federal language as proposed in the bill.

And I just, the other thing I would say is that $150 million is just a big number for me to get my mind around, and I don't know that I can specifically answer you as to how far that would go.

It seems to me that what I can say is that it is quite crucial that there be both State and Federal commitments in sufficient portions so that the State feels it has an obligation to carry through with the program rather than simply waiting for the Federal Government to provide essentially a free ride for these sorts of things. But as to the adequacy of $150 million, I would have to defer to other experts on that.

I am sorry.

Senator **Durenberger**. Mr. Barlow, I don't know if you were here this morning, but we had a number of people representing the

Cattlemen's Association and the American Farm Bureau and so forth, and they left us with the impression that great progress has been made over the last 50 years; this program ought to be voluntary; that at best we ought to get more demonstration of a variety of the appropriate management practices; and that above all, we ought not to put any kind of deadlines on this program.

I wonder if you might react to that as an approach?

Mr. **Barlow**. I think that there is probably a majority of the people in our line of work who really are careful about nonpoint source pollution or pollution, and they do avail themselves of the information available through the Soil Conservation Service.

I personally would be very hesitant to say that the people who are creating a problem which, while in the minority are creating a major problem, would react in any kind of a positive way to voluntary compliance.

No matter how many demonstrations you gave them, I mean, the people who would be giving the demonstrations are the kinds of people that they trust the least, and I don't think they would listen. I don't like to see governmental intervention in anybody's affairs, but you have to take a look at the good of the greater community here, and I don't see any other way to get these things done without some Government intervention.

Senator **Durenberger**. OK. Thank you.

Alan, do you have a question?

Senator **Simpson**. Yes, Mr. Chairman, just a couple of questions for the panel, whoever might wish to respond.

The original approach that this committee took was primarily a grant program to assist the States, and this amendment that is proposed or formulated goes beyond that approach.

What do you feel should be the scope of a nonpoint source control program? Should we continue to have a grants program, or should we assure that the hammer does come down?

Mr. **Radonski**. Senator Simpson, from the standpoint of the fisheries, I think your last expression, "Should the hammer come down?" applies.

As I mentioned earlier in my testimony, the fisheries source bears the end of this whole thing, nonpoint pollution affecting our lakes and streams in a very insidious fashion, and I think for the value of the fishery resource, we have to have a compulsory program that starts getting results.

Ms. **Bochert**. Senator Simpson?

Senator **Simpson**. Please, yes.

Ms. **Bochert**. The program that I described that is administered in the State of Wisconsin is, in fact, a voluntary program for both urban and rural nonpoint sources and, in fact, has operated largely through a grant program mechanism, and we think to great success.

Now, I would be somewhat hesitant to generalize our experience in Wisconsin to what each other State would experience, but I would recommend that certainly the grant component of the legislation be retained and that the committee not sweep aside too easily the success that voluntary program efforts can have.

Our experience has been quite good. At the same time, I do believe that deadlines and EPA oversight to get programs into place independent of the question of what their specific content might be are the sorts of incentives that can encourage each of the States to participate rather than moving immediately to a mandatory regulatory sort of program in this area.

Senator SIMPSON. John, do you have any comment on that?

Mr. BARLOW. I would agree with you completely, and I think that you will see an increased voluntary compliance as information becomes available. I mean, there are people who have problems that they are unaware of, and brought to their attention, I think they would try to correct them.

There are people who have problems that they are aware of that don't have any knowledge of the techniques for correcting them, and I think they would correct them if they knew those techniques.

But as she says, there are going to be people who are going to require somebody to come in and drop the hammer.

Dr. HAIR. Senator Simpson, could I just add one further postmark to this?

Senator SIMPSON. Yes, please.

Dr. HAIR. It is like many of the environmental problems we face, air quality being a good example: That there are interstate consequences, and in this case, you have river systems that flow along and in between States. So it is important there be a mandated program that all States must comply with so that there is not the option for selective participation or nonparticipation.

Senator SIMPSON. Let me just ask, then, one other question, and I will submit the rest of these in writing, Mr. Chairman. But are you concerned, then, that the downstream State could enforce its regulations on an upstream State and that cause anyone concern?

Dr. HAIR. The idea here would be our point of view that the Environmental Protection Agency would be that intermediary.

Senator SIMPSON. Would the EPA be there as a coordinating and oversight agency, or would they be handling the entire program, at that time?

Dr. HAIR. It would certainly be there from a coordinating and arbiter's point of view to assure that there is an equity in terms of what is being asked to be implemented. I think we have a very classic example right here in this area with the States of Pennsylvania and Maryland and Virginia, the Governors of those three States coming together to address the problem of the Chesapeake Bay, because they are impacted as far as Pennsylvania and the Susquehanna River is concerned, and there is a proper in Federal role in those kinds of programs.

Senator SIMPSON. Thank you, Mr. Chairman, very much.

Senator MITCHELL. I just want to pursue, Dr. Hair, your response to Senator Simpson's question, because while I think there is not much dislocation with what you said, that is not what this bill says, and although I don't want to read Senator Simpson's mind, I think that the concern is that some of us have is that the way this reads, the downstream State may petition the Administrator to require the upstream State to file an implementation plan which is consistent with the implementation plan adopted by the downstream State.

I believe there are existing procedures under other provisions of the law that call for, on petition of a downstream State, the EPA to convene an enforcement conference and to try to develop a rational plan. But of course, what this says is, it doesn't say that. It authorizes the petitioner to require an upstream State to develop a plan compatible with the downstream State's.

It seems to me the problem with that is the upstream State with problems and resources may not be identical, indeed, are not likely to be identical to the downstream State. What I am going to do is, we had so many people this morning and I took the time that I am going to follow the pattern here that I followed this morning with all the other witnesses. I have five questions, one of which is this. I would like to ask them and ask you to submit a brief statement in writing to the extent you have not answered them.

Some of you have answered some of the questions, but rather then trying to go through this with a great deal of time, and I know Senator Chafee who is actually the author and leader in this area, may have some questions to ask. I don't want to unduly lengthen this proceeding, as I could ask these questions, as I say, some of you have already answered some of them.

Since we had an awful lot of witnesses this morning and since I started this and I am now going to get some material in writing from the others; I would just as soon get them.

The first question is, should the program be mandated? Should there be a deadline for State implementation? If so, what should that deadline be? Should there be a provision requiring a cross compliance? I assume you are all familiar with that. That is, should the Federal Government be precluded from providing financial assistance for industries which do not conform with the State's implementation plan?

And finally, what I began with, the downstream State provision; should the provision as contained in the legislation stand or should it be modified in any respect, specifically, the respect I suggested, that rather than putting in this flexible mechanism of requiring the adoption of a plan consistent with the downstream State plan, should there be some form of flexible enforcement conference or some mechanism for trying to develop a rational plan? I don't know what you would do if Louisiana started petitioning for every State upstream on the Mississippi River. It would be an interesting exercise, in any event.

I think that is something we ought to review very carefully.

Mr. Radonski. Senator, the provisions of the downstream State is really an extension of English riparian law, and a practice recognized in the eastern one-half of the United States and is not generally applied to western water law. So, I think we are going to have somewhat of a geographical dichotamy here in the Senate there have been arguments for many years over western water law versus riparian water law, I don't feel that the downstream State language in Senator Durenberger's bill will help resolve it.

I don't know if this legislation is going to correct that.

Senator Durenberger. Maybe your answer can help that.

Senator Mitchell. I am from the East, but I am also a U.S. Senator, and I don't think that just because we have all done something that way in the East is good reason to force it on the West. If there is a substantive valid, logical reason for doing it, that's what we want to know. Then we ought to do it, and I know you didn't mean to suggest that was a complete answer, but to me, to say that is the way we always did it in the East is not a sufficient reason to require it of the West, because their circumstances are different.

Mr. **Radonski**. I just point it out as a little bit of history of how thing thing will go in relation to past activities.

Senator **Durenberger**. Are we going to get written replies? Does anybody want to add something briefly right now?

Ms. **Bochert**. I just have a question of clarification, Senator, if I may, on your first question. I think that we are talking about two different sorts of mandatory programs, or perhaps, we have two different things in mind. When you asked about a mandatory program, do you mean mandatory in that each State must have a program, or do you mean mandatory in that the program that each State has will mandate that everyone who has a nonpoint source control problem deal with it rather than leaving that on a sort of voluntary basis as I was describing we have in Wisconsin right now?

Senator **Mitchell**. I mean the former, but it sounds so good the way you stated it, we should use both.

Senator **Durenberger**. John?

Mr. **Barlow**. Since I think I did address the first four in my testimony, I would just like to briefly address the fifth. There is a difference between western and eastern ways of dealing with water. I do think definitely you are going to have to confront this issue. My knowledge of the way things have been going on the Colorado is that we are going to require some kind of arbitration regarding nonpoint pollution, because so far it has been a mess. The downstream States are blaming upstream States for the salinity. The upstream States are saying that it's coming in downstream, and somebody is going to have to come in there and settle that.

I don't know anybody besides the Feds who can do it.

Senator **Mitchell**. See, I don't disagree with that, but this adopts a rather inflexible mechanism that doesn't permit any flexibility. It simply says that downstream State A can require upstream State B to adopt a plan to conform with downstream State A's plan. That seems to me to be a little inflexbile. Maybe there is a good reason for it.

Senator **Durenberger**. Maybe it is the definition of compatible, too.

Senator **Mitchell**. That is really what I want to get at, is the substance of it. Does this make sense? If so, what are the reasons for it? If it doesn't make sense, what alternative mechanisms can we have?

Mr. **Barlow**. Would it be possible, Senator, to construct language which would deal with major river systems as a body? Is there any way that can be done?

Senator **Mitchell**. Well, we write the laws, so I guess anything is possible.

Mr. **Barlow**. Because a drainage like the Colorado cannot be dealt with entirely as bits and pieces with arbitrary State lines drawn across it. It is a unit.

Senator **Mitchell**. Certainly, many laws are written that distinguish their application between, among various classifications subject to it. I see no reason why it couldn't be done in this case, if it made the most sense.

Senator **Durenberger**. Senator Chafee?

Senator **Chafee**. Thank you, Mr. Chairman.

First I would like to say to Mr. Barlow that I spent some time out in your area in the Box R Ranch.

Mr. **Barlow**. Just up the road.

Senator **Chafee**. They must be a neighbor of yours.

Mr. **Barlow**. You drove right through our yard to get there.

Senator **Chafee**. By driving through a yard, that means 16 miles up the pike.

In any event, what I would like to ask each of you is somewhat along the lines of Senator Mitchell's question, and let me set the background a little bit. As you know, the administration has given a lot of thought to this, but the Administrator of EPA, Mr. Ruckelshaus, is not sure just how to proceed. One of the legitimate problems that is worrying him is the difficulty of having the Federal money come into action and thus deterring what you described as voluntary compliance.

In other words, if a farmer knows that there will be some money coming along to build a fence that will keep the cattle from breaking down the embankment leading to the stream, instead of putting up that fence, he will wait for that money to come along, which is human nature. My question is, do you see a problem in that, or do you see that problem being solved by the point that by the requirement that in *x* years, all nonpoint source pollution be cured? Why don't I start with, well, Mr. Hair?

Dr. **Hair**. I think it certainly is fair, Senator Chafee, that there be a time dated period when the major nonpoint pollution sources will be, in your terminology, cured. I don't think that it is fair to allow flagrant problems to continue because some land owner knows that if it continues, then he will put this fence up around the problem.

I think after a reasonable period of time, if the problems are not resolved, then there should be a penalty clause to take care of his problems.

Senator **Chafee**. Yes?

Mr. **Radonski**. Senator Chafee, I think we will never cure the nonpoint source pollution problem. What we are talking about is developing a reasonable method of managing the problem and staying on top of it, the sooner we get on with it, the better off we will all be.

Senator **Chafee**. All right.

Ms. Bochert?

Ms. **Bochert**. Senator, we had the same problem in the point source program in that municipalities found it advantageous frequently to wait until Federal construction dollars could be available before building, and in Wisconsin, we dealt with that by taking a position that that was not an acceptable way of proceeding and the deadline had to be met.

But we also created a State grant program in order to enable us to have more funds to make available.

I don't think you ever really solve this problem of waiting for the money. I think you don't solve it or should not solve it in this case by doing away with the grant program, because on balance, even though the grant program can complicate efforts to get compliance from a regulatory standpoint, in the long run, I think it is the best use of all of our efforts to try to provide those financial incentives and opportunities, and it is something that regulatory agencies, if you will, have and will continue to learn to work around in terms of administering these programs.

As you know, there is no perfect system, but I think that maintaining the Federal grant approach is the best proposal under the circumstances, rather than eliminating it.

Senator CHAFEE. Yes?

Mr. JOHNSON. Yes. I am Bob Johnson, and I find the question quite interesting.

Before I took up my present position, I ran the clean lakes program and found that a marvellous progran that provided a little bit of incentive money, and by doing that, you got a lot of people willing to volunteer to put in pollution control practices and with a lot of their own hard cash and in-kind services, greater than 50 percent.

I was really pleased to see that your matching percentage was 50 percent, and I hope that it stays that way and in perhaps even be reduced.

I think that you do get people to come and offer to volunteer, but also, to be supportive of a deadline and on oversight, there are those people that regardless of how much money you are going to give them, they are not going to do it unless that there is that kind of incentive.

So I think it should be flexible and include both types of provisions.

Senator DURENBERGER. I would like my colleagues to know that back in about 1970, whenever this was, 1976 or 1977, my wife volunteered to be the chair of the Minneapolis lake water quality study and taught us all marvellous things about what we did on our yards that ended up in our water supply.

Senator CHAFEE. Mr. Barlow?

Mr. BARLOW. I would agree with Mr. Johnson. You have to use the carrot and the stick at the same time in the sense that you have to have the incentive and promise of the funds being made available, but at the same time, you have to have hovering over there someplace the possibility of intervention in a way that would be unpleasant. I think if you use them both together, you are going to create the kind of awareness that you need much more rapidly.

That is your first job, obviously; creating a higher level of awareness among the agricultural water users of the nonpoint pollution.

Senator CHAFEE. Mr. Chairman, I did not have the opportunity to hear all the witnesses today, but if they were as favorable toward this legislation as this panel, and I suspect they all were not, it is encouraging.

As everyone in the room knows, this is an area that we have danced around for a good number of years, specifically, nonpoint source pollution.

We felt we had enough worries without tangling with that. However, this year we, and I think I speak for all those on the subcommittee and perhaps, I hope, on the full committee, we have decided to go after it.

We have had all kinds of testimony that over 50 percent of the pollution in many instances is nonpoint source.

So I appreciate the support that you have given to us, and I don't know what the ranchers said, but I will read their testimony, the cattlemen's association and so forth that appeared this morning, because, obviously, they have problems and challenges that it behooves us to be aware of.

But I hope we can get on with this, meeting this great challenge. I think Mr. Barlow in his statement was very interesting when he talked about that a sound nonpoint source pollution program will encourage agricultural practices which are prudent and discourage short-sighted land exploitation.

That is a fringe benefit which we are very conscious of, although our primary obligation, as you can appreciate, is clean water. But that is very nice to have something that will be affecting it, as well.

Thank you, very much, Mr. Chairman.

Senator **Simpson**. Mr. Chairman, may I ask one other question since I was involved at one time in earlier activities in the State legislature?

Senator **Durenberger**. You may.

Senator **Simpson**. With regard to land use planning, I ended up sponsoring such a bill when I was in the State legislature which brought ridicule and hideous emotion down on my head.

I would ask you here, at this table, just swiftly, because you have been courteous, do you foresee that the argument on the other side is that this is going to lead to some kind of de facto land use planning?

How are you going to handle that one when that comes into debate, either at the committee level or the floor level, because it surely will, that this is some kind of de facto land use planning.

Mr. **Radonski**. I don't have a whole lot of problem with that on the basis that a person does not have the right to damage another resource, and if they have negligent practices on their land and they are damaging somebody else's property further downstream, some action has to be taken.

If you are going to call it land use planning, maybe that is what it is, but it is still one person damaging another person's rights.

Mr. **Barlow**. I think you would be tickled today, Senator Simpson, to see how smart everybody got about that over the period of years since you passed that bill. People accept it, and they understand the necessity for it, and I think they understand the necessity for this better than they would have then.

Dr. **Hair**. Our experience is that it is not land use planning but it is average techniques that are designed not to close anyone down.

It will not tell a landowner that he must grow crop *x* or *y* or graze cattle *a* or *b*, but if he is going to do either of those practices, he must do it in a way that doesn't contribute to nonpoint pollution or damaging resources.

Mr. **Johnson**. I would like to support Mr. Hair on that. It is certainly not de facto land use planning. It might be de facto land use management, but certainly not the planning. The people are responsible for whatever they do on the land that will contribute to a problem.

Certainly, they should attend to that as other people attend to their problems.

Senator DURENBERGER. And it is not everybody, either. Maybe Linda can speak to that. I looked at the map in the Wisconsin Report. This is a process that starts with your worst pollution and works its way up.

Ms. BOCHERT. Precisely.

Mr. RADONSKI. Mr. Chairman, if I may excuse myself, I do have another engagement.

Senator DURENBERGER. Yes, you may.

Ms. BOCHERT. The one response, I will speak to, Senator, on your point is the way the program works. In Wisconsin, we administer it at the State level, the DNR develops the program, but it is implemented through the county organizations, and we include among those organizations the county land conservation committees which are accepted, if you will, at the local level as the appropriate place for that sort of decisionmaking to be handled.

In Wisconsin, the label "land use planning" has the same effect on legislation as apparently it did when you introduced your bill. It is not a label of support. And, yet, this legislation has been very effective because we have made the extra series of efforts to have it implemented through local decisionmaking bodies which are accepted by people.

Senator SIMPSON. I think it is important to blunt that kind of argument, and there is a good way to blunt it.

Senator DURENBERGER. Thank you.

Mr. Chairman, do you have a question?

Senator STAFFORD. I have no particular comments except a sense of regret that I was involved today in a floor struggle over some educational legislation which I was a principal participant in.

That forced me to go to the floor this morning after the first hour of witnesses instead of spending the day here as I originally planned.

So I did hear the first panel, and I heard the beginnings of the testimony of the ranchers from Texas, but it was in the middle of their testimony that I had to leave, so I missed a day that I had hoped to spend here listening to witnesses on this important subject, and I want to say I am very grateful to you, Senator Durenberger, for carrying the burden of chairing these hearings through the day.

Senator DURENBERGER. Thank you, Mr. Chairman.

Any other questions?

Ms. BOCHERT. Senator Durenberger, if I may, you asked me a question earlier which I have a little better answer for at the moment, about the money provided in the bill.

Senator DURENBERGER. Yes.

Ms. BOCHERT. I think maybe the best way I can supplement my answer is to say this: It is unlikely that Congress could ever authorize enough money, it seems, to tackle all of the needs that we have. For example, we have done an analysis of what we project Wisconsin's needs to be to do the job that we have identified for nonpoint source control, and the total is about $250 million in 1981 dollars, $200 million of which would be dedicated to financial assistance and $50 million of which would be dedicated to technical assistance and educational assistance.

So that, obviously, is a big need compared, for one State, and, yet, even though I think Congress can never identify a figure that will be enough, I would want to go on to say immediately that we have to start somewhere, and the sum in the bill or some amount in excess of that, if that were possible, is certainly the best place to start.

Senator **Durenberger**. Thank you, very much, and I thank all the witnesses for their contribution this afternoon.

The hearing will be adjourned.

[Whereupon, at 3:45 p.m., the committee recessed, to reconvene at the call of the Chair.]

[Statements and replies to written questions follow:]

STATEMENT OF BRUCE A. ROSS-SHERIFF, PROJECT DIRECTOR, OFFICE OF TECHNOLOGY ASSESSMENT

Mr. Chairman and Members of the Committee:

Thank you for inviting the Office of Technology Assessment (OTA) to appear before you today. I am Bruce Ross-Sheriff, OTA's Project Director for the assessment of Impacts of Technology on U.S. Cropland and Rangeland Productivity. That assessment, requested by this Committee, was completed and delivered to the Committee last year. A number of the findings from that assessment are very relevant to your deliberations regarding non-point source pollution. My purpose today is to summarize those.

The inherent capacity of U.S. croplands and rangelands to produce crops and forage is, on the whole, being gradually degraded. This has not been a cause for great alarm because the loss of natural soil productivity has been compensated for by a much more rapid improvement in the productivity of agricultural labor and purchased inputs. Thus, we have had adequate and even surplus production from the land and we face no prospect of food or forage shortages over the next several decades. However, most of the gains in overall agricultural production have been dependent on technologies using high quantities of fossil fuels. Lower inherent productivity means more purchased inputs are necessary to maintain or increase production than would be necessary if land quality were better maintained. Therefore, the increases in fossil fuel prices occurring over the past decade have resulted in renewed interest in protecting the inherent, renewable productivity of agricultural land.

During the same period, we have increasingly come to understand that the factors that affect the ability of the land to produce crops and forage are largely the same factors that affect non-point source water pollution. Chief among these is soil erosion. It is the main cause of land productivity degradation and is a main non-point source of water pollution.

Our assessment found that rather good data are available on amounts of erosion occurring on cropland under various conditions existing throughout the United States. But the understanding of just how this erosion affects land productivity and water quality at a local or national scale is surprisingly imprecise. For example, we know that water-caused erosion on non-Federal lands in 1977 totaled about 5 billion tons. The largest share of that came from croplands. (Sheet and rill erosion from croplands comprised about 38 percent of the total, 29 percent was sheet and rill erosion from forests and other land, 8 percent was sheet and rill erosion from rangelands, 3 percent was sheet and rill erosion from pasturelands. Another 11 percent of the total was streambank erosion, 6 percent was gully erosion, and 5 percent was from roads and construction sites.) Wind erosion in 1977 in just 10 States (the Great Plains States) moved another 1.5 billion tons of soil. Data on wind erosion are imprecise, but water erosion data are good enough to pinpoint specific sites where most of the erosion is occurring.

Much less is known about how soil erosion affects the long-term productivity of croplands, or where all these billions of tons of soil are going. The best estimates of soil formation rates suggest that cropland soils are probably being eroded on average, at least ten times faster than they are being formed. Thus we are mining a potentially renewable resource. Techniques are being developed at USDA to assess more precisely the effect of soil loss on crop yields.

Techniques are already available to calculate how much of the soil goes where, but these have not yet been applied in wide-area inventories. A general rule of thumb developed from case studies is that about one-fourth of the soil moved by sheet and rill erosion becomes sediment in the Nation's water bodies. Higher proportions of the gully and streambank erosion become sediment, of course. Thus, the total soil from erosion that gets into the Nation's waterbodies each year is probably on the order of 1.8 billion tons. However, the one-fourth rule understates the importance of the soil that erodes from croplands and grazinglands into streams and lakes. The soil components that are carried farthest by running water are the water-soluble plant nutrients and plant protection chemicals. Next come the lightest or most easily eroded solid soil particles, the humus and the clays. As it happens these are also the soil components with the highest cation exchange capacity, meaning they do most to enhance soil fertility and they can do most to cause eutrophication problems in the the waterbodies. A conservative estimate (conservative because it does not take into account the relative weights of the various kinds of soil particles) of the costs to farmers to replace the nutrients eroded from croplands into water bodies each year is 1 to 4 billion dollars.

Another finding relevant to the subject today is that erosion from croplands and grazinglands is very unevenly distributed. The 1977 National Resource Inventory, conducted by the Soil Conservation Service, indicated that the soil loss problem, while pervasive, is highly concentrated on a minority of the croplands and grazinglands. For example, 25 percent of the (sheet and rill) erosion from croplands occurs on just 2 percent of the land. Of course, streambank and gully erosion are even more concentrated on readily identifiable problem sites. The 1982 National Resource Inventory, which is still being analyzed, will greatly improve the understanding of how and where erosion is concentrated on particular lands. Meanwhile, a number of insights provided by the 1977 NRI have not received much attention. For example, the 49 tons per acre is the average erosion rate (sheet and rill erosion) on croplands in Puerto Rico and the U.S. Virgin Islands.

Experts who participated in our assessment hypothesized that the most erosive lands in many areas were likely to be owned or managed by farmers with some special social and economic characteristics. Subsequent research at Iowa State University seems to support this hypothesis. Thus, government conservation programs could be more cost-effective if they were more specifically designed for particular problem sites.

The major finding of our technology assessment, and a finding that seems very germane to the legislation being considered by this Committee is that soil conservation and agricultural production need not conflict. That sounds like something we thought we all knew. Certainly farmers and ranchers will say they never doubted it. But it turns out to be quite different from the thinking that has often prevailed in conservation economics and U.S. agricultural policy. A common view in conservation economics has been that farming techniques that conserve the productivity of land are necessarily less profitable than those which do not. This has led to an unnecessary dichotomy between conservation and production in agricultural policy and in technology development However, our assessment is that for many situations, technologies do exist that enhance soil conservation and farmers' profits at the same time. Conservation tillage is widely recognized as such a technology. But there are many others which are often not recognized as soil conservation techniques, such as multiple cropping, soil fertility management, and precise scheduling of grazing times for livestock.

For the most fragile lands with the highest erosion rates, profitable soil conserving technologies to allow cultivation of annual plant crops or to allow intensive grazing probably do not exist. We expect that they could be developed if conservation were made a goal for research, development, and extension of new production techniques. For example, perennial plants seem to have great potential as crops for highly erodable soils, but there has been too little development of farming systems based on such plants.

The implication of these findings for the legislation being considered by this Committee are (1) that the long-term productivity of U.S. agriculture and the profits of U.S. farmers both will gain from more widespread use of practices that control erosion and sedimentation, and (2) substantial gains in control of non-point source pollution can be achieved with modest increases in government spending. This is because it is now technically possible to direct erosion control programs to specific problem sites and, in some cases, to focus efforts on conservation techniques that will improve farmers' profits. Such technologies may need government program support for research, development, and introduction, but it is reasonable to expect them to become more widespread without continuing government subsidies. This is what is happening now with conservation tillage and several of the other soil conserving technologies we studied.

Finally, our assessment analyzed the role of government programs and institutions in soil conservation. We found a very encouraging momentum in development of State government plans and programs for soil conservation. Long-term conservation plans with powerful mechanisms for implementation have been instituted in Iowa and Oregon, for example. Iowa, Nebraska, Minnesota, Wisconsin, Ohio, and Kansas all have State-funded cost sharing programs. The State government assumption of responsibility for soil conservation is a relatively recent phenomenon. It appears in large part to be the successful consequence of a number of Federal efforts. These include the Federal Water Pollution Control Act of 1972, the Clean Water Act of 1977, and the Soil and Water Resources Conservation Act of 1977. The Model State Act for Soil Erosion and Sediment Control published by the Council of State Governments in

1973 has also been instrumental in this process. The legislation being considered now appears to be designed to continue the progress already made in getting State governments to take responsibility for soil erosion and sedimentation control.

In closing I would like to comment on the key role of the Soil Conservation Districts in this new development of State plans and programs. About 3,000 Soil Conservation Districts cover 99 percent of the Nation. They are governed by local citizens and are a powerful institutional base already in place and already acting to coordinate Federal and State policies at the local level. They had a central role in preparation of the "208 plans" mandated by the Federal Water Pollution Control Act and in development and, most importantly, implementation of the State and Federal conservation programs. As you know, they are well organized through their State and national organizations to communicate to policymakers the changing needs and priorities of local communities. Thus, their counsel regarding this legislation may be especially important to you.

STATEMENT OF EDWIN H. CLARK II

My name is Edwin H. Clark, II, and I am pleased to be here to discuss some of the problems of nonpoint source pollution and its impact upon water quality in our streams, rivers, lakes, and reservoirs. I am currently a senior associate at The Conservation Foundation, a not-for-profit environmental policy research organization, where, among other activities, I am completing a comprehensive study of the types and economic costs of impacts caused by sediment and other pollutants resulting from soil erosion.

This morning I would like to summarize for you some of the results of this study. They indicate that our failure to control nonpoint source pollution is imposing substantial economic costs on the country, perhaps measured in the billions of dollars. In order to provide a better feeling for the potential significance of this source of water pollution, it may be useful first to look at some of the basic data on soil erosion in the United States.

In 1977, 6.4 billion tons of soil eroded from non-federal lands, above and beyond normal geological erosion. This is equivalent to about 30 tons of soil for each person in the United States, or to an average of more than 220 tons of erosion every second of the year. About 1.5 billion tons of this was wind erosion from cropland and rangeland in the Great Plains states. The rest was water erosion of cropland (39%), pastureland and rangeland (30%), and a variety of other sources including forestland, streambanks, gulleys, roads, and construction sites.

Some simple comparisons on agricultural erosion are instructive. For instance, the State of Iowa is famous for its corn production. But it also produces a lot of erosion. In fact, for every one ton of corn raised by an Iowa farmer in 1977, five tons of soil were eroded by water from that state's cropland. Nationally, for each pound of food consumed in the United States, over 22 pounds of soil were eroded from all agricultural lands by water. The average rate of water erosion of cropland alone was more than 89 tons per second.

Much of this erosion comes from a relatively small portion of the land. This is an important fact to remember when considering the need for erosion control measures. For instance, less than 3 percent of the land, eroding at a rate of more than 25 tons per acre per year, is producing almost a third of the total erosion (and even a higher proportion, almost 60 percent, of the "excess" erosion -- this is the erosion in excess of 5 tons per acre which is (somewhat arbitrarily) considered to be safe).

The majority of this eroded soil eventually reaches the nation's waterways, and once there can cause serious problems. In states such as Kansas and Illinois, it is one of their most serious water pollution problems. It can destroy valuable fish populations in streams and bays, increase the cost of water treatment for downstream users, make valuable recreational facilities essentially useless, increase significantly the flood damages along rivers, interfere with navigation, and silt up valuable storage space in lakes and reservoirs.

Other, perhaps more serious problems arise because erosion from cropland not only includes natural soil, but other contaminants such as fertilizers, pesticides and oxygen consuming organic materials. Pesticides can be toxic to fish, and potentially to humans. Fertilizers can be a source of potentially toxic nitrites in drinking water supplies, and stimulate algae growth, accelerating the eutrophication of lakes and reservoirs. As algae die and decay, they, along with the plant residues and other organic materials carried into the stream, use up oxygen, often reducing the oxygen level so much that some fish species can no longer survive. These off-site pollution problems are exacerbated when farmers try to compensate for lost productivity by using more fertilizers, pesticides, and other inputs, without reducing the amount of erosion.

The preliminary results of our study are indicating that the total economic costs caused by sediment and pollutants associated with erosion amount to $2.5 to $3.0 billion dollars a year. Some of these costs -- 15 to 20 percent -- result from impacts commonly associated with water pollution; for instance, $40 million for increased water treatment costs, another $40 million for damages to inland commercial fisheries, and $100 to $500 million in damages to recreational opportunities.

But many of the costs are of a different type, and may not normally be linked to water pollution problems. For instance, about 25 percent are related to dredging. The Corps of Engineers spent $362 million in 1980 dredging harbors and navigation channels. The purpose of the dredging is to remove sediment deposits, and sediment comes from soil erosion. These federal expenditures are thought to be matched by like amounts spent for dredging by state and local governments and private firms.

The sediment is also filling up our water supply and flood control reservoirs, and this accounts for about 30 percent of the costs. Twenty percent of the capacity of new reservoirs -- costing about $300 million a year -- is built for the sole purpose of storing sediment. An estimated one million acre feet of existing reservoir capacity is being filled each year by sediment. That capacity has to be replaced, or someone will be short of water. Even if we could replace it at 1980 costs, the bill would come to some $300 million. In flood control projects and other small reservoirs, the project managers are able to remove the sediment -- and probably pay $200 million a year doing so. And finally, reservoir and lake owners are spending significant amounts -- an estimated $100 million a year -- to attempt to control algae, seaweed and other problems caused by nutrients which are associated with soil erosion.

The other major cost area is flood damages, accounting for 20 percent of the costs. Sediment-clogged channels flood more often and the floods are bigger than they would be if there were no erosion. Even more important is the damage caused by sediment -- a major portion of urban flood damages are not caused by the water, but rather the sediment and other pollutants it leaves behind. And sediment deposits also destroy millions of dollars worth of agricultural products every year and reduce the long-term productivity of the flooded land. The total costs of these sediment-related damages are probably about $600 million annually.

The final type of cost is the cost of removing sediment from drainage ditches and irrigation canals. These channel maintenance costs amount of an estimated $200 million per year.

Again, the sum of all these preliminary estimates is $2.5 to $3.0 billion a year. And this does not include many impacts for which there is not enough quantitative information to make even crude cost estimates.

In addition to emphasizing that these estimates are still preliminary, I should also point out that even the most complete soil conservation or nonpoint source pollution control program would not result in these costs being entirely eliminated. Many of them are caused, at least in part, by "natural" erosion processes that can never be completely controlled.

Even so, I believe our study demonstrates the very high costs that the nation is experiencing because it has not yet attempted to control nonpoint sources of pollution. If we are serious about attaining our goals of fishable, swimmable waters, we are clearly going to have to do something about these sources.

According to one recent estimate, nonpoint sources are currently responsible for about three-fourths of the sediment in our rivers, over 90 percent of fecal and other coliform bacteria, 80 percent of the total nitrogen and 50 percent of the phosphorus that reach our waterways. They are the major source of pesticide pollution, and an important source of other toxic pollutants. For instance, over 90 percent of the lead reaching most of the Great Lakes comes from nonpoint sources. And they are a major, and in some places, dominant source of BOD loadings.

In some cases the impact of these sources is more serious than even the total amount of pollution would indicate because their discharge are concentrated during storm periods. Although the increased water in the rivers associated with a storm provides a dilution effect, the concentration of pollutants, for instance of sediment, will be much higher following a storm than during normal times. And the slug of BOD running off a city's streets with a summer storm may cause a much more serious impact on oxygen levels in the receiving stream than the steady contribution of the municipal sewage plant.

What Can Be Done

Having established that nonpoint source pollution is a serious problem which has potentially significant impacts on water quality, the question is what can we do about it? Answering this question requires judgments about technology, knowledge, economics and institutions.

With respect to most sources, the technical problems are largely solved. For most agricultural lands, techniques for reducing soil erosion have proven their effectiveness over the past four decades.

Similarly effective erosion control techniques have been demonstrated for construction sites and for mines.

However, in some areas the technical answers are not so obvious. For instance, there is still a fair amount of uncertainty about the success of different measures for controlling nonpoint source pollution from urban areas. It is also true that some of these technical solutions may cause problems of their own. There is still some debate, for instance, on whether no-till agriculture decreases or increases the amount of pesticides (particularly herbicides) carried into our streams or ground water.

Nevertheless, I think it is fair to conclude that in most cases, we have technical solutions to solve the problem.

The next question is do we have sufficient knowledge? For instance, do we know which techniques should be adopted at any particular location and where they should be applied in order to control water quality problems? Here again I conclude that in most cases we do have sufficient information. We do not need to initiate a new planning program. I have personally reviewed hundreds of documents produced by the Section 208 planning process. Many of these demonstrated that the relevant state or local agencies had substantial knowledge about the extent and sources of their water quality problems. The products of the Section 208 planning process, the information collected for the Section 305(b) water quality reports, the knowledge of the local soil conservation officials, and other such sources of information should suffice, I believe, to allow us to take action on these problems. I repeat, I do not think that we need to initiate another new major planning effort. We can, if we have the will, get right to work to correct the problems.

But having the will means having the money and the institutions to deal with these problems. And here is where the problems lie. Although some of the techniques are inexpensive (and can reduce a farmer's costs), others are too expensive for many farmers with their currently depressed incomes or cities with their depressed revenues to afford without outside help. The current economic conditions should certainly make one hesitate before suggesting new or expanded pollution cleanup programs.

But, of course, the current economic conditions are not permanent. We already appear to be starting to climb out of the recession. This may, in fact, be the best time to initiate a nonpoint pollution control program, because its economic effects will not be experienced until the economy is once again fairly healthy. Nevertheless, any such program could cause significant economic hardship unless the government were willing to provide increased economic aid to those farmers and municipalities that do not have the financial resources to undertake the required expenditures.

I do not mean to suggest, in making these observations, that the costs of controlling nonpoint sources are too great. In many areas the costs of not controlling them are certainly greater. It is just that, at least at present, some of the responsible parties are suffering severe economic problems that financially prevent them from doing what needs to be done.

The final question is whether we have the appropriate institutions for achieving this cleanup. This is probably the most uncertain area of all. We have, over the past three decades, spent over $20 billion on federal programs to reduce soil erosion. But we are still losing 2 billion tons of soil a year from our cropland. Our soil erosion control programs have depended primarily upon farmers to volunteer to adopt the erosion control measures. Millions have done so, and the requests for assistance always exceed the amount of funds appropriated. But those farmers suffering the most serious erosion problems are not always the ones most anxious to volunteer. If we are to adequately address the problem of nonpoint source pollution, I believe that we will probably have to go beyond depending only on volunteers. There will need to be measures that can require more reticent land owners to take action as well.

The same is true for urban areas. We have yet to achieve the goals we established for cleaning up municipal sewage. To some extent this is because the federal government has not been able to provide the matching funds that the municipalities need. But there has also been a reluctance on the part of some municipalities to deal with the problem -- after all, it doesn't affect them, only the cities downstream. And, quite understandably, the state and federal governments have been hesitant to force the reluctant cities to take action. These problems would certainly not become simpler if we were to attempt also to control nonpoint source pollution from urban areas.

There are, of course, already a number of federal programs which can and should assist in this process. The Department of Agriculture's soil and water conservation programs should be focused on controlling nonpoint source pollution from agricultural lands. Similarly, the Departments of Interior, Transportation, and Housing and Urban Development have programs which can help control nonpoint source pollution from mines, urbanized areas, and construction sites. And other programs such as the Pesticide Control Law, the Municipal Waste Treatment Grants Program, and the Toxic Substances Control Act can help as well. Any nonpoint source pollution control program should make use of all these existing laws and programs to the maximum extent possible.

And such a program ought to place the major responsibility for its implementation at the state or local level. Controlling nonpoint source pollution requires specific knowledge about specific problems, and this sort of insight cannot be gained by bureaucrats sitting in Washington or in EPA's regional offices. But state and local authorities will require the strong support of the federal government, including, I believe, additional legislation which will help (and in some cases even force) them to do what needs to be done.

I have prepared some written comments on the proposed nonpoint source amendment the committee is considering. These are attached to my written testimony, and I would be happy to discuss them with you on the committee staff.

This concludes my prepared statement. I would be happy to attempt to answer any questions you might have.

The Conservation Foundation
1717 Massachusetts Avenue, N.W., Washington, D.C. [illegible]
Telephone (202)797-4300 Cable: [illegible]

August 10, 1983

The Honorable Robert T. Stafford
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

attn: Ronald B. Outen

Dear Senator Stafford:

This is in response to the questions you raised in your letter of July 22, 1983. I apologize for the delay in my reply, but hope that it may still be of some use.

I have summarized my own personal answers to Senator Simpson's questions on the attachment to this letter. I would be happy to expand on any of these answers if desired.

Let me again say that I appreciated the opportunity to testify before the Committee and would be happy to help you or the Committee staff in developing an effective nonpoint source amendment to the Clean Water Act in any way that I can.

Yours truly,

Edwin H. Clark, II
Edwin H. Clark, II
Senior Associate

Attachment

Responses to Senator Simpson's questions on a Nonpoint Source Pollution Amendment
by
Edwin H. Clark, II

Question

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenburger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

Answer

If we are to see significant improvements in water quality, we must have more than a simple grants program to attempt to control nonpoint sources of pollution. The nation's efforts to control soil erosion over the past 50 years, largely because they have been little more than an unfocused grants program, have proved to be relatively ineffective. We are still experiencing erosion rates of 6.4 billion tons a year in spite of the $16 to $30 billion dollars we have spent for soil conservation over this period. One reason for this is that the expenditures have not been targeted on the most serious problem, but another is that there have not been adequate incentives in the program to keep farmers practicing soil conservation measures. For instance, one study concluded that there were fewer soil conservation investments in place in the 1970s than there were in the 1950s in spite of billions of dollars of federal monies spent on constructing such investments. The reason appears to be that farmers were ripping out old investments faster than they were installing new ones. All this experience makes me relatively pessimistic about what a grants-only program would accomplish.

On the other hand, I do not think that it is necessary to have as rigorous a regulatory program as we instituted for point source control. I believe that most nonpoint sources will take reasonable action to control their pollution once they understand the problems they are causing, see a reasonable and coherent program for dealing with those problems, and understand what actions they should be taking to limit the pollution they cause. However, there may also be cases in which the voluntary approach will not work. For these cases it may not be necessary to put the hammer down, but it would be very useful to have one in hand.

Question

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

Answer

I believe that the Environmental Protection Agency should definitely have an important role in controlling nonpoint source pollution. I would perceive this role as primarily involving education, oversight, and an ability to stimulate state agencies to take action. I also believe that the major responsibility has to lie at the state and local levels. Except in very unusual circumstances, EPA should not be in the position of having to enforce specific practices on specific sites.

Question

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

Answer

Having worked in the bureaucracy for 10 years, I would never underestimate the potential for jurisdictional and bureaucratic disputes between agencies. My experience has been that these types of problems are greatest when responsibilities for a program have not been clearly assigned to a lead agency. Thus I think that placing the program clearly under EPA would reduce the type of conflicts that could arise.

Question

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

Answer

The definition of "Best Management Practices" was intended to take into account the costs of the practices and their potential economic impacts. Because of the uncertainty that was expressed on this issue during the hearings, I would recommend making these considerations explicit in the amendment along the lines of the following substitution for the proposed subsection b(1)(D)(i):

> a description of the best management practices and measures which will be undertaken (including land use requirements) to control each category or subcategory of such nonpoint sources detailed in subsection (b)(1)(B) in order to reduce pollutant loadings resulting from such nonpoint sources; in identifying best management practices or measures, a state should take into account the relative effectiveness of alternative available management practices or measures in reducing or eliminating pollutant discharges, the

technological feasibility and costs of applying the practices or measures, the economic impacts of applying the practices or measures on the owners or operators of such sources, and any ancillary environmental impacts of such practices or measures.

Question

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

Answer

No!

Question

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

Answer

As I read the proposed amendment, a downstream state would not be able to impose or enforce its regulations on an upstream state. However, I also recognize that this is a very sensitive issue, particularly in some regions such as the Colorado River basin, and that either the amendment should be written so as to clearly indicate that this cannot occur, or the legislative history should make this clear.

Nevertheless, the upstream/downstream state problem is one that the amendment, I believe, must address if it is to deal with the nonpoint source problem effectively.

STATEMENT OF WILLIAM C. BAKER

Mr. Chairman and members of the Committee, I am William C. Baker, Executive Director of the Chesapeake Bay Foundation. The Foundation is a non-profit, conservation organization. We represent over 13,000 members. We are dedicated to the wise management of the Chesapeake Bay and to the preservation of the Bay's natural resources. As part of our environmental educational program, we operate a 300 acre farm in the Prince George's County, Maryland where we demonstrate the relationship between upland farming activities and downstream water quality. At the farm, we are working closely with the Soil Conservation Service to implement sound conservation practices. I am pleased to have the opportunity to testify in support of strong federal action on nonpoint source pollution.

As this Committee has recognized in S.431, the Chesapeake Bay is a national treasure of extraordinary value. The results of the Chesapeake Bay Program research, have indicated that the water quality of the Bay is severely degraded, and that the Bay's living aquatic resources have severely declined over the last few decades. The principal causes of this degradation are over-enrichment by nutrients and contamination by toxic pollutants. It is a well-known and fully accepted fact that nonpoint source pollution is a significant, major contributor of both nutrients and toxicants to the Bay system. Any effort designed to clean-up the Bay must give a high priority to nonpoint source control strategies. In Section 117 of S.431, this Committee has recognized the national significance of restoring the water quality of this, North America's greatest estuary. In addition, Section 117 provides an excellent mechanism to begin to address the serious problems confronting the Bay. We applaud your actions.

Although in many ways the Chesapeake Bay is unique, its present problems are not. I believe that the lessons we have learned from the recent Bay studies have direct relevance to the pollution problems of other estuaries, lakes, and rivers throughout the Nation.

Although we now know that contaminants that run off the land with stormwater are a major cause of severe water pollution, and although we now know that effective methods to control such loadings are technically feasible, we still have not provided the funds and incentive programs needed to implement these controls on a broad scale.

If we are seriously committed to the objective of the Clean Water Act, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters," it is imperative that strong initiatives to reduce nonpoint pollution be undertaken at once at federal, state, and local levels. I emphasize, however, that based on past experience, we must realize that the federal government must take the lead. Furthermore, on the Chesapeake Bay, at least, we do not have the luxury of time. The research has been completed, the studies have been written, and the demonstration projects have been carried out -- now is the time to act if we want to prevent irreparable damage to this magnificent environmental and economic resource.

For the purpose of this discussion I will focus first on nonpoint sources of sediment and nutrient pollution and then on nonpoint sources of toxic pollutants. Within each of these general categories, I will briefly discuss the pollutant loadings, their environmental effects on the Chesapeake Bay, the control strategies available to combat such pollution, and the governmental approaches presently employed. The final section will set forth the reasons for my belief that the proposed amendment to the Clean Water Act offers the appropriate response to this problem.

I. LAND USE PATTERNS IN THE BAY

Nonpoint sources of pollution to the Chesapeake Bay by definition are diffuse, consisting of runoff from forests, farmland, residential and commercial development, groundwater flows, and atmospheric deposition. For the Chesapeake Bay region, agricultural lands appear to be the principal nonpoint source of nutrients. The runoff from urban and other developed areas is, however, a matter of special concern because of the presence of large quantities of heavy metals and other toxic compounds.

When discussing nonpoint source pollution, there is a tendency to focus on farmland. It is important to realize that, acre for acre, developed residential land produces greater pollutant loadings than farmland.

The land use patterns in the Bay watershed are changing and the nature of the change indicates that effective strategies for nonpoint source pollution must address both agricultural lands and developed lands. Conversion to residential, urban, and suburban areas has been rapid. Although such land comprises less than 15 percent of the watershed, this represents an increase of 182 percent in the last thirty years. The conversion to residential areas has been concentrated in areas surrounding existing development. For example, in the Patuxent River basin the percent of developed land has risen from approximately 3 percent in 1950 to over 35 percent in 1980.

II. NONPOINT SOURCES OF NUTRIENTS

Pollution from farming activities is principally caused by the runoff of topsoil. The amount and nature of this runoff varies considerably with regard to such factors as tillage practices; slope of land; soil type; fertilizer and pesticide usage; and livestock and feedlot management.

Although the amount of farmland in the Bay region has declined in the past thirty years, intense new farming practices have dramatically increased loadings. The use of fertilizers, for example, has increased steadily, nearly doubling in the past twenty years (Figure 1).

The Environmental Protection Agency's Chesapeake Bay Program studies focussed on the presence and effects of nutrients in the Chesapeake Bay system. Excellent data on the total loadings of phosphorus and nitrogen from point and nonpoint sources of pollution has been produced. Tables 1 and 2 of this testimony present these data. In a year of average rainfall, nonpoint source pollution contributes 39 percent of total phosphorus to the Bay system and 67 percent of total nitrogen. (In wet years, these figures rise to 64 percent of the total phosphorus and 81 percent of the total nitrogen loadings.) Runoff from cropland represents a significant portion of these totals: in average rainfall years, cropland contributes 27 percent of the total phosphorus loadings from both point and nonpoint sources and 60 percent of the total nitrogen loadings. (In wet years, these figures become 53 percent of the total phosphorus and 75 percent of the total nitrogen.)

Nonpoint contributions of nutrients from developed, residential, and commercial land is, in terms of relative magnitude, considerably less, but demands attention. Earthmoving activities related to construction carries an enormous potential for sediment runoff. In the Bay region, as noted, development tends to concentrate around existing high-stress areas. In addition, with a large amount of paved surfaces, pollutants accumulate during dry periods, allowing high concentrations of pollutants, including toxicants, to enter the water body in massive doses after heavy rains.

The great value of the EPA Chesapeake Bay Program is that we now have the knowledge to develop site-specific control strategies for different parts of the Chesapeake Bay. For instance, the Susquehanna River contributes 53 percent of the total phosphorus load to the upper Bay and 77 percent of the nitrogen load. EPA estimates that of these totals 60 percent of the phosphorus and 85 percent of the nitrogen comes from cropland runoff. Thus, to reduce nutrient loadings from the Susquehanna River, we must concentrate on agricultural runoff.

In addition, EPA research has well documented the effects of nutrients on the water quality of the Bay and on its natural resources. Excessive nutrients accelerate eutrophic conditions, principally by stimulating the growth and reproduction of algae. The algae, in its decomposition, consumes available dissolved oxygen in the water. Figure 2 depicts the low dissolved oxygen or anoxic (no oxygen) conditions in the Bay during the summer months. The areas of the Bay affected by low dissolved oxygen levels have increased over 15 times in the past 30 years. The duration of such conditions has also increased, lasting now from May through September.

Other indicators of the degraded health of the Bay are the populations of fish that spawn in estuarine and freshwater areas. EPA's research documents the decline of these species and the concurrent increase in marine or ocean spawners. Because estuarine and freshwater spawners are exposed to ambient conditions in the Bay during their most sensitive life stages (egg, larval, and juvenile). These downward trends are ominous.

Bay grasses, a key component to the productivity of an estuary, have all but disappeared. EPA researchers have demonstrated a strong correlation between the decline of the Bay grasses and excessive amounts of nutrients.

The time to begin controlling nonpoint sources of nutrients is now, not only for the sake of the Chesapeake Bay but, I suspect, for other waterbodies. Not only do we know the sources and effects of excessive nutrient runoff, we also know how to reduce this pollution to acceptable levels. With respect to agriculture, there is a broad array of "best management practices," the effectiveness of which have been well-documented. These include improved tillage and crop rotation practices, the use of grassed waterways and buffer strips, proper application of fertilizers, and animal waste and feedlot management practices. The most appropriate set of controls depends on a variety of site-specific factors such as crops, soil types, and the slope of the land. Most of these controls benefit not only the quality of the receiving waters but the farmer as well. Reducing topsoil loss to an acceptable level and keeping fertilizers on farmland rather than in the water are obviously in the best economic interest of the farmers.

Given the mutual benefits to both agricultural and environmental interests, what are the reasons for the inadequacies of present programs? The principal reasons involve lack of information, inadequate financial assistance, and poor technical resources. For example, federal cost-share assistance for conservation measures is limited to $3500 per farmer per year. Several states, including Maryland, have adopted state cost-sharing programs to supplement the federal program. Even with the state participation, the available funds remain woefully inadequate. The cost for installing an animal waste management system, for example, may be as high as $100,000.

Another severe handicap is the lack of trained technical personnel. The Soil Conservation Service and local Soil Conservation Districts provide technical assistance to farm operators, including the identification of best management practices for an individual farm. Simply put, there is not enough money or personnel to do this on a comprehensive basis. In Maryland, for instance, the state has developed a document entitled "Statewide Agricultural Water Quality Management Program for the Control of Sediment and Animal Wastes" pursuant to Section 208 of the Clean Water

Act, but has never implemented the plans due to lack of resources on the state and local level. As a result, although there are over 13,000 conservation district co-operators and 925,000 acres of farmland with soil conservation plans in Maryland, EPA estimates that only 40 to 60 percent of these plans are being fully implemented and that an additional 1.1 million acres need conservation plans to reduce state losses of topsoil to acceptable levels. In some tobacco growing areas of this state, losses of soil exceed 20 tons per acre per year.

In non-agricultural lands, there is a similar inability to curb nonpoint sources of nutrients. Again, using Maryland as an example, the state has implemented a mandatory sediment control program and has recently adopted a stormwater management program. Both programs call for state guidance and assistance, and both depend on the local governments and Soil Conservation Districts for their implementation. Largely due to lack of manpower and technical expertise on the local level, the implementation of the sediment control program has been haphazard and, to a distressing degree, ineffective. The stormwater management program, once implemented, may suffer a similar fate.

III. NONPOINT SOURCES OF TOXIC COMPOUNDS

Nutrient enrichment is not the sole factor contributing to the stressed condition of the Chesapeake Bay. EPA Bay studies have demonstrated that in significant portions of the Bay, both the water column and sediments are severely contaminated by heavy metals and toxic organic compounds. The presence of these toxicants in the Bay system at elevated levels is particularly worrisome in light of our limited understanding of their long-term chronic and synergistic effects in waterbodies. These toxicants are accumulating in the sediments of the Bay, available for uptake by the benthic community and subject to resuspension by dredging activities, storm events, and other natural manmade processes.

Runoff, primarily from urban areas, contributes huge quantities of toxic pollutants to the Bay system. Table 4 presents the loadings of certain heavy metals from these urban areas.

The Chesapeake Bay Program estimated that the nonpoint source loadings of hydrocarbons from residential, commercial, and industrial land exceeds 100,000 pounds per day. (The EPA analysis did not include the contribution of hydrocarbons from highways, a major contributor, so the actual loadings are actually higher.)

The EPA Chesapeake Bay Program data on toxic runoff are confirmed by the preliminary findings of the Nationwide Urban Runoff Program. In the sampling program undertaken in that program, six heavy metals ware present in a majority of cases sampled, and three of these metals (copper, lead, and zinc) were present in over 95 percent of all samples. For lead, in 96 percent of these samples, the concentrations exceeded EPA's criterion for freshwater chronic toxicity; 62 percent of these exceeded EPA's primary drinking water criterion.

Given our present state of knowledge, it is virtually impossible to attribute specific environmental effects to the presence of toxic pollutants in the water column or the sediments. Sampling undertaken by EPA indicates that toxic pollutants in the Bay's water frequently exceed EPA's criteria. With the exception of Kepone in the James River, however, toxic pollutants have not yet warranted direct action to prevent human health effects. Heavy metals are present in oyster tissues and may be exerting sublethal effects in finfish and shellfish. Contaminants remain in the Bay; they are not flushed out to sea. The accumulation of toxic pollutants in the Bay's sediments indicate that the prudent course is to eliminate the introduction of toxicants to the Bay.

Control techniques are available. Reducing runoff will reduce toxic loadings. As with nutrient controls, there are a variety of best management practices that work effectively to control urban runoff. Infiltration devices, grassed waterways, and storage basins all operate to reduce runoff pollution. The NURP studies, for example, indicate that wet detention basins are particularily effective in reducing total suspended solids and the heavy metals that attach to sediments. These control techniques can be installed readily in developing urban areas.

We must recognize that in existing urban areas, retrofitting such devices may prove prohibitively expensive. As the older urban areas undergo redevelopment, however, the opportunity to incorporate the necessary changes exists. This may delay, but should not prevent, the eventual installation of control devices in existing urban areas.

IV. THE PROPOSED AMENDMENT

The Environmental Protection Agency's Chesapeake Bay Program has provided us with a wealth of information concerning nonpoint source pollution. This information is relevant not only to the Chesapeake Bay but to other bays and estuaries affected by nonpoint source pollution. The EPA's Bay reports also provide the information necessary to fashion cost-effective remedies designed to reduce this form of pollution. We cannot afford to await the completion of further studies to tackle nonpoint source pollution. A decade's worth of effort in controlling point sources of pollution may be squandered unless the Nation vigorously addresses nonpoint source pollution now.

In my opinion, the proposed amendement to the Clean Water Act under consideration today provides both the appropriate mechanism and adequate funding levels to initiate this process.

The amendment allows states to fashion a comprehensive management program to address nonpoint source pollution. Because land use management considerations lie at the heart of nonpoint source pollution, it is appropriate that the states, rather than the federal government, develop such plans. The elements of such plans, set forth in subsection (b) of the amendment, require the state to consider all facets of its plan: affected waters; sources of pollution; control practices and measures; associated costs; administrative and legal considerations. This is also appropriate.

Subsection (e) provides authorization of 150 million dollars a year in federal cost-share grants to be allocated to the states on the basis of the length of their affected shorelines. Although the length of shoreline roughly provides an equitable measure of the relative magnitude of nonpoint source pollution, the difficulty and therefore the costs of controlling such pollution is dependent on a variety of other factors such as the size and topography of the watershed, land use patterns, and prevalent soil types. The subsection should allow the Administration to adjust the apportionment formula to take into account such considerations.

In addition, the statute or accompanying legislative history should define the word "stream." Are intermittent and ephemeral streams to be included or just perennial streams? If states were to use different definitions for the word in their designations, the results of the apportionment may be greatly skewed.

We strongly support subsection (g) that forbids the federal government from engaging in or supporting activities not in conformance with a nonpoint pollution management plan. The provision may be further strengthened by extending its coverage to federal licensing and permitting activities.

I thank you for the opportunity to express my support of this amendment. EPA, in its studies on the Bay and elsewhere, has provided us with the information to attack this problem in a cost-effective manner. The time for moving forcibly to control nonpoint pollution is now.

Table 1

PHOSPHORUS LOADINGS TO CHESAPEAKE BAY BY MAJOR BASIN (MARCH-OCTOBER)

BASIN	PHOSPHORUS (LBS) DRY	AVG.	WET	% POINT SOURCE CONTRIBUTION DRY	AVG.	WET	% CROPLAND LOAD CONTRIBUTION DRY	AVG.	WET	% OTHER NONPOINT SOURCE LOAD CONTRIB'S DRY	AVG.	WET	% TOTAL NONPOINT SOURCE CONTRIBUT. DRY	AVG.	WET
PART A: AT THE FALL LINE															
SUSQUEHANNA	2,070,000	2,900,000	6,300,000	24	23	12	--	60	77	--	16	11	76	76	88
PATUXENT	344,000	328,000	383,000	92	90	76	--	7	19	--	3	5	8	10	24
POTOMAC	717,000	854,000	2,370,000	27	15	7	--	52	72	--	33	21	73	85	93
RAPPAHANNOCK	107,000	104,000	285,000	1	1	1	--	58	75	--	41	24	99	99	99
YORK	66,500	78,000	332,000	7	7	2	--	74	86	--	19	12	93	93	98
JAMES	657,000	768,000	1,517,000	45	36	21	--	46	63	--	18	16	55	64	79
TOTAL	3,961,500	5,032,000	11,187,000	33	28	14		53	72		19	14	67	72	86
PART B: TO TIDAL WATERS (BELOW THE FALL LINE)															
W. CHESAPEAKE	2,173,000	2,391,000	3,045,000	93	85	67	--	8	25	--	7	8	7	15	23
PATUXENT	130,000	150,000	286,000	79	69	36	--	19	51	--	12	13	21	31	64
POTOMAC	1,940,000	2,012,000	2,779,000	82	79	57	--	10	31	--	11	12	18	21	43
RAPPAHANNOCK	119,000	174,000	486,000	89	61	22	--	27	69	--	12	9	11	39	78
YORK	85,000	143,000	457,000	84	50	16	--	27	68	--	10	8	16	50	84
JAMES	2,915,000	3,023,000	3,453,000	96	93	81	--	3	14	--	4	5	4	7	19
EASTERN SHORE	760,000	833,000	2,117,000	44	40	16	--	50	79	--	10	5	56	60	84
TOTAL	8,122,000	8,726,000	12,623,000	87	81	56		12	36		7	8	13	19	44
PART C: PART A + PART B															
SUSQUEHANNA	2,070,000	2,900,000	6,300,000	24	23	12	--	60	77	--	17	11	76	77	88
PATUXENT	474,000	478,000	669,000	88	83	58	--	10	33	--	7	9	12	17	42
POTOMAC	2,657,000	2,866,000	5,149,000	67	59	34	--	23	50	--	18	16	33	41	66
RAPPAHANNOCK	226,000	278,000	771,000	47	39	14	--	39	71	--	22	15	53	61	86
YORK	151,500	221,000	789,000	50	35	10	--	44	76	--	6	14	50	65	90
JAMES	3,572,000	3,791,000	4,970,000	86	81	63	--	12	29	--	7	8	14	19	37
W. CHESAPEAKE	2,173,000	2,391,000	3,045,000	86	73	67	--	15	39	--	13	12	14	28	51
EASTERN SHORE	760,000	833,000	2,117,000	44	40	16	--	50	79	--	10	5	56	60	84
TOTAL	12,084,000	12,759,000	23,810,000	69	61	36		27	53		12	11	31	39	64

Table 2

NITROGEN LOADINGS TO CHESAPEAKE BAY BY MAJOR BASIN (MARCH-OCTOBER)

BASIN	NITROGEN (LBS) DRY	NITROGEN (LBS) AVG.	NITROGEN (LBS) WET	% POINT SOURCE CONTRIBUTION DRY	% POINT SOURCE CONTRIBUTION AVG.	% POINT SOURCE CONTRIBUTION WET	% CROPLAND LOAD CONTRIBUTION DRY	% CROPLAND LOAD CONTRIBUTION AVG.	% CROPLAND LOAD CONTRIBUTION WET	% OTHER NONPOINT SOURCE LOAD CONTRIB'S DRY	% OTHER NONPOINT SOURCE LOAD CONTRIB'S AVG.	% OTHER NONPOINT SOURCE LOAD CONTRIB'S WET	% TOTAL NONPOINT SOURCE CONTRIBUT. DRY	% TOTAL NONPOINT SOURCE CONTRIBUT. AVG.	% TOTAL NONPOINT SOURCE CONTRIBUT. WET
PART A: AT THE FALL LINE															
SUSQUEHANNA	47,300,000	58,200,000	105,000,000	10	10	5	--	85	91	--	5	4	90	90	95
PATUXENT	1,268,000	1,180,000	1,780,000	71	65	41	--	29	53	--	6	6	29	35	59
POTOMAC	13,800,000	16,600,000	39,100,000	10	10	10	--	83	84	--	7	6	90	90	90
RAPPAHANNOCK	1,530,000	1,600,000	3,710,000	10	10	10	--	72	78	--	18	12	90	90	90
YORK	693,000	816,000	2,720,000	10	10	10	--	78	82	--	12	8	90	90	90
JAMES	3,872,000	5,076,000	11,070,000	10	9	8	--	73	78	--	18	14	90	91	92
TOTAL	68,463,000	83,472,000	163,380,000	11	11	7		83	88		6	5	89	89	93
PART B: TO TIDAL WATERS (BELOW THE FALL LINE)															
W. CHESAPEAKE	13,594,000	15,984,000	18,181,000	85	72	52	--	20	40	--	8	8	15	28	48
PATUXENT	965,000	1,313,000	2,813,000	48	35	16	--	55	75	--	10	9	52	65	84
POTOMAC	17,807,000	18,477,000	25,067,000	77	74	55	--	17	37	--	9	8	23	26	45
RAPPAHANNOCK	615,000	1,345,000	4,505,000	37	17	5	--	73	89	--	10	6	63	83	95
YORK	693,000	1,513,000	4,963,000	34	15	5	--	76	90	--	9	5	66	85	95
JAMES	13,799,000	15,429,000	19,609,000	88	79	62	--	15	32	--	6	6	12	21	38
EASTERN SHORE	7,191,000	8,741,000	20,901,000	13	10	4	--	83	92	--	7	4	87	90	96
TOTAL	54,664,000	62,802,000	99,942,000	72	62	39		30	54		8	7	28	38	61
PART C: PART A + PART B															
SUSQUEHANNA	47,300,000	58,200,000	105,000,000	10	10	5	--	85	91	--	5	4	90	90	95
PATUXENT	2,233,000	2,493,000	4,593,000	61	49	26	--	43	66	--	8	8	39	51	74
POTOMAC	31,607,000	35,077,000	64,167,000	48	44	28	--	48	66	--	8	6	52	55	72
RAPPAHANNOCK	2,145,000	2,945,000	8,215,000	17	13	7	--	72	84	--	15	9	83	87	93
YORK	1,386,000	2,329,000	7,683,000	22	13	7	--	77	87	--	10	6	78	87	93
JAMES	17,671,000	20,505,000	30,679,000	71	62	43	--	29	49	--	9	8	29	38	57
W. CHESAPEAKE	9,620,000	12,034,000	18,181,000	78	63	41	--	26	49	--	11	10	22	37	59
EASTERN SHORE	7,191,000	8,741,000	20,901,000	13	10	4	--	83	92		7	4	87	90	96
TOTAL	123,127,000	146,225,000	263,273,000	38	33	19		60	75		7	6	62	67	81

Table 3

URBAN RUNOFF METAL LOADING FROM THREE MAJOR METROPOLITAN AREAS OF CHESAPEAKE BAY (POUNDS/DAY^{-1}) (BIERI ET AL. 1982)

	Pb	Zn	Cu	Mn	Fe	Cr	Cd	Ni
Baltimore	211	115	18	30	1755	18	30	36
Norfolk/Newport News/Hampton	157	90	12	18	1284	24	6	24
Washington, DC	302	175	24	42	2852	24	6	60
TOTAL	670	380	54	90	5891	66	42	120

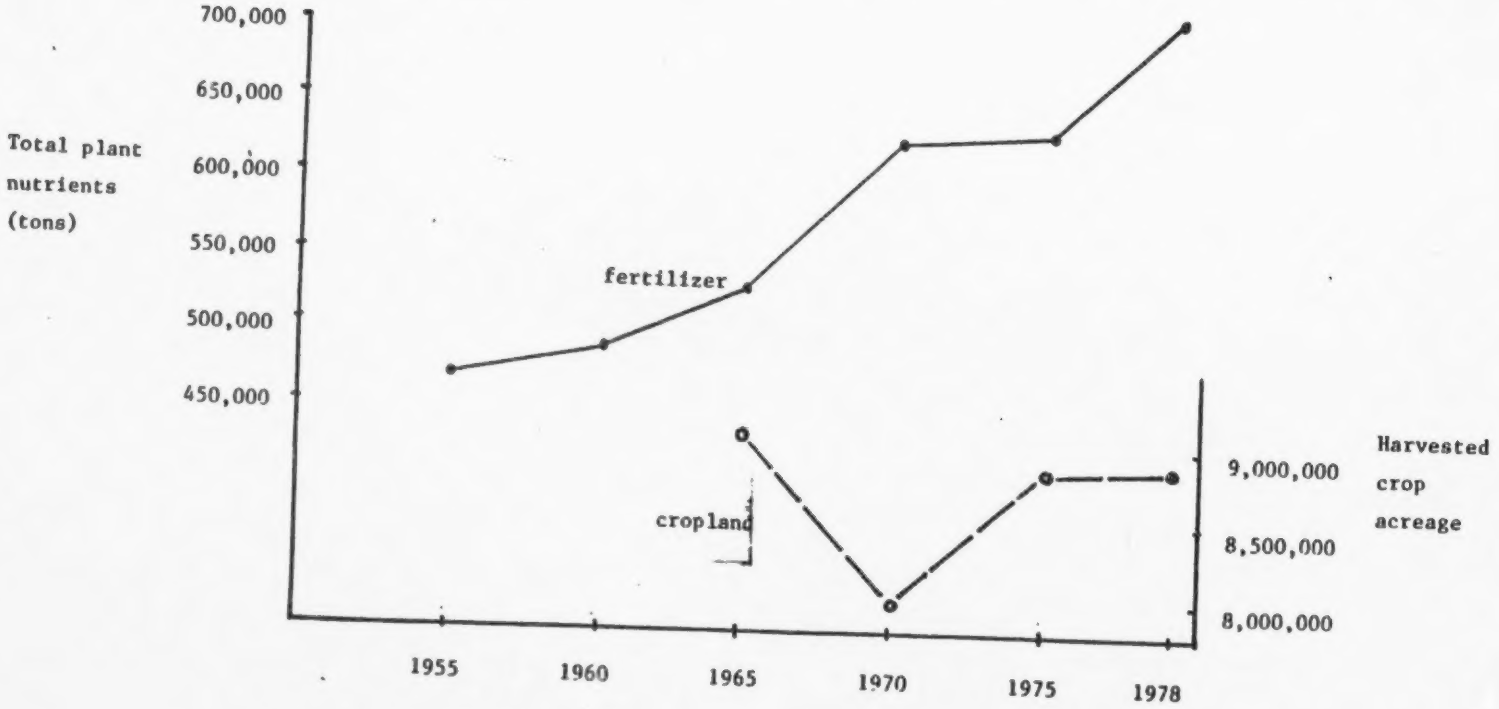
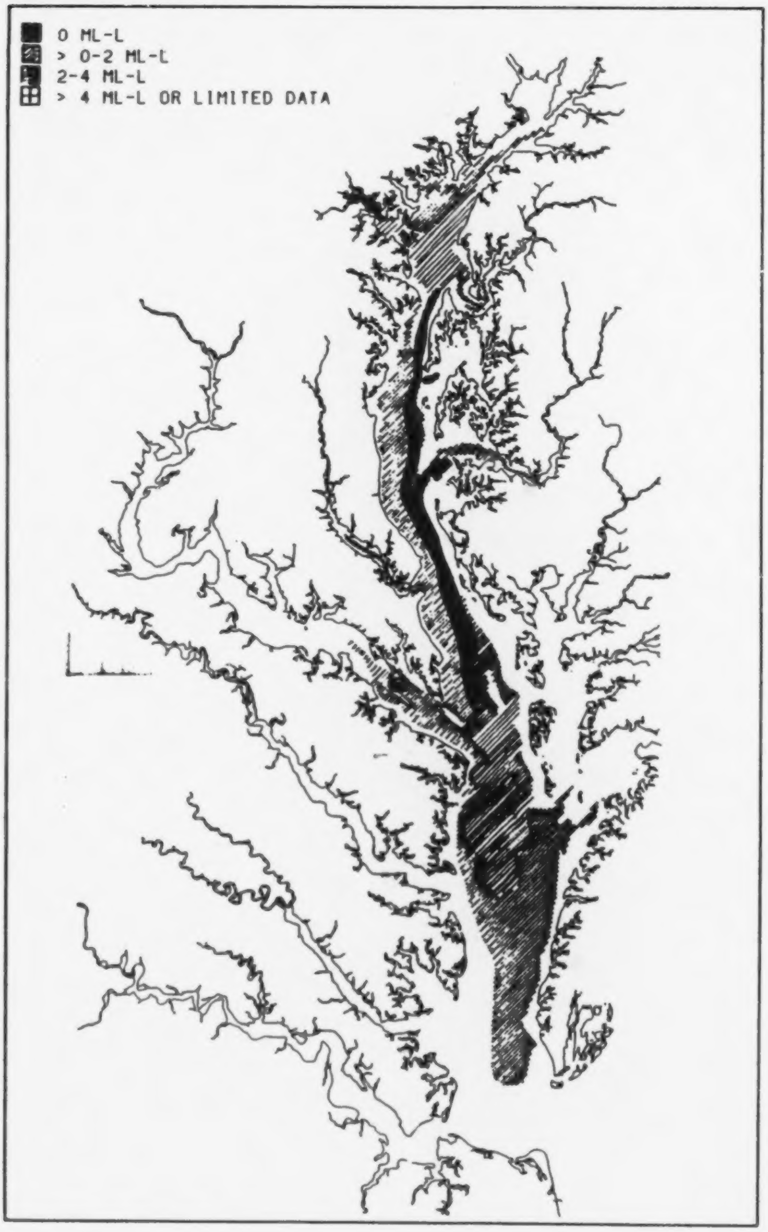


Figure 1. Comparison of total fertilizer applied to total harvested acreage in Virginia, Pennsylvania and Maryland from 1955- 1978.

Figure 2

AREA OF BAY BOTTOM AFFECTED BY DISSOLVED OXYGEN (JULY/AUG 1980)


0 ML-L
> 0-2 ML-L
2-4 ML-L
> 4 ML-L OR LIMITED DATA

Chesapeake Bay Foundation

"Resource Representation - Environmental Education - Land Preservation"

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Executive Director
William C. Baker

July 28, 1983

Mr. Ronald B. Outen
Environment and Public Works Committee
United States Senate
Washington, DC 20510

Dear Mr. Outen:

At Senator Stafford's request, I am submitting written responses to questions of Senator Simpson concerning Nonpoint Source Management Program.

If CBF can provide the Committee any further assistance in its considerations of the Clean Water Act Amendments of 1983, please do not hesitate to contact me.

Sincerely yours

William C. Baker
Executive Director

WCB/mcj

Response of Chesapeake Bay Foundation
To Questions on Nonpoint Source Management Program

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenberger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

In our opinion, the Durenberger amendment offers a middle course between a grants program, which in the area of nonpoint source pollution has proven ineffectual, and one that puts "the hammer down." States are entrusted with the responsibility of developing comprehensive nonpoint source control programs. This is entirely proper as the states are in the best position to develop programs responsive to their needs. EPA's review also appears appropriate as the large amounts of federal grant monies contemplated deserve a significant degree of oversight and guidance to ensure that they are effectively spent.

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

EPA is the agency best-situated to administer the entire program. To a large degree, the Durenberger amendment is a natural completion of the process initiated pursuant to Section 208 of the Clean Water Act. Nonpoint sources of pollution are rural, urban and suburban in nature. EPA has both the technical resources and the experience in managing environmental grants programs that will be necessary to run this program. The Soil Conservation Service will, of course, be able to provide valuable assistance to EPA with respect to agricultural runoff.

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

In a large program such as the one contemplated in the Durenberger amendment, there is the potential for bureaucratic wrangling. Clear designation of EPA as the principal agency responsible for the administration of the program will reduce this possibility.

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

Such a requirement might in some cases be prohibitvely expensive if not coupled with technical and financial assistance. The large amount of federal grant money available, to be matched by equal amount of state money, should enable states in the implementation of their programs to avoid this situation. The Durenberger amendment, as we read it, provides a safety valve allowing extended periods for achieving compliance. This provision should also operate to avoid imposing prohibitively expensive requirements on individuals.

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

Yes, the Durenberger amendment would stimulate land use planning. Mismanagement of our land resources imperils our water resources. Again, the amendment places the responsibility on the states to develop and implement a comprehensive plan to control nonpoint source pollution. If this amounts to "some form of de facto land use planning," we applaud it.

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

There is a need for consistency in both approach and implementation in states sharing a common watershed. This does not necessitate ironclad consistency, nor does it require downstream states to enforce their programs in upstream states. The legislative history accompanying the legislation can provide quidance to ensure that this provision operates sensibly. If, for example, Maryland, a downstream state, believes that it is necessary to reduce phosphorus loadings to attain water quality standards in the state, there should be a mechanism to require upstream states, such as Pennsylvania, to reduce the amount of phosphorus entering the watershed. This need not entail Maryland enforcement of its regulations in Pennsylvania, rather it requires a procedure to recognize the legitimate interests of downstream states in the development and implementation of the plans of upstream states.

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NATIONAL CATTLEMEN'S ASSOCIATION

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STATEMENT

of the

National Cattlemen's Association

Before the

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U. S. SENATE

Presented by:

D.B. Polk, Member

208 Water Quality Subcommittee

National Cattlemen's Association

July 19, 1983

The National Cattlemen's Association is the national spokesman for all segments of the nation's beef cattle industry--including cattle breeders, producers, and feeders. The NCA represents approximately 245,000 professional cattlemen throughout the country. Membership includes individual members as well as 50 affiliated state cattle associations and 19 affiliated national breed organizations.

Mr. Chairman, Members of the Committee:

My name is D. B. Polk. I am a fourth generation Texas rancher from Belton, Texas. In addition to serving as a member of the National Cattlemen's Association's (NCA) 208 Water Quality Subcommittee, I also serve as chairman of NCA's Soil and Water Resources Conservation Act Task Force and chairman of NCA's Forest and Rangeland Renewable Resources Planning Act Task Force.

The National Cattlemen's Association and I want to compliment this Senate Committee for holding these hearings. It is reassuring to know that you, like me, are vitally interested in controlling nonpoint source pollution. Congressional hearings such as this provide an opportunity for all interested groups to consciously and constructively work together to solve our problems related to nonpoint source pollution. We are extremely pleased to have a part in these hearings and we trust that our thoughts and ideas will merit your earnest consideration. Our comments will be restricted to the grazing land resource base of the United States.

The National Cattlemen's Association recognizes the need and desirability of improving, maintaining, and protecting our nation's land and water from erosion and sedimentation. It is further recognized that agricultural nonpoint source pollution does exist and a nonpoint source program is needed. We believe that such a program for agricultural lands should have the following principles in mind:

Nonpoint sources of pollution may be corrected on a one-time cleanup operation.

Agriculture nonpoint source pollution may be improved but it is a problem that will exist into infinity because of ever-changing variables.

To maintain satisfactory levels of pollution, continuous funding and technical assistance will be required.

Members of the ranching industry have been carrying out the best management practices for many years to improve their and the nation's quality in the environment. Significant improvement has been made under voluntary programs. It must be recognized that programs in some areas have attained success to a degree that nonpoint source is insignificant, but in other areas there is a need for continued efforts to improve our environment.

Generally, unconfined livestock operations are very compatible with a high-quality environment. However, there is a potential for problems where vegetation is excessively grazed, excess and undesirable woody species have invaded, and in areas where animals tend to concentrate.

Nonpoint sources of pollution should be managed for reduction or maintenance. Adverse weather causes a fluctuation upward or downward of pollution levels.

Even with implementation of best management practices, adverse weather may cause excessive pollution for short or prolonged periods of time.

An acceptable level and continued reduction of nonpoint source pollution will be influenced by continuously advancing technology.

It is generally recognized that use of best management practices reduce nonpoint source pollution. As of this date, past and current research is and has been inadequate to scientifically evaluate and provide concrete data relative to needs of providing sound guidance on the many facets related to nonpoint source pollution.

The cornerstone of our nation's conservation efforts related to water quality has been successful under a flexible voluntary program. The NCA desires that policies and programs related to agricultural nonpoint source pollution be kept and carried out through a voluntary approach.

The nation's ranching industry has been a consistent supporter and active participant in helping to control nonpoint source water pollution on agricultural lands. The conservation measures that ranchers have and are carrying out have not only improved their own resources but enhanced fish and wildlife habitat, erosion control, and improved both water quantity and quality. We have often been disappointed that the public benefits from private conservation efforts are overlooked.

Our interest in and dedication to controlling nonpoint source pollution is rooted in moral, economic, and ecological reasons.

We fully recognize that our nation's number one pollutant, silt and sediment, results from past land abuse or current neglect. Our industry largely depends upon forages grown on rangeland, pastureland, and forestland. Overgrazing of these lands for prolonged periods reduces the quantity and quality of protective plant cover, leaving the soil surface bare. This exposed soil is ten at the mercy of nature's erosive processes. Not only is precious topsoil lost, but the soil that is washed away also carries with it nutrients, pesticides, salts, and other potential pollutants. As stewards of nearly 61 percent of the land area of the United States, cattlemen feel a moral obligation to care for this land which is vital to mankind's existence now and which is essential for the sustenance of future generations of Americans. We view conservation of our soil, water, plant, and wildlife resources as a never-ending task.

The conservation of our natural resources is inseparably linked to our efforts to control nonpoint source pollution. You simply cannot have one without the other. Our nation's grazing lands are dynamic ecosystems. Each rancher is a practicing ecologist who employs knowledge of the interaction of soil, plants, water, and animals (including widlife) in managing his grazing land for its maintenance and perpetuation and for a sustained economic return from his investment.

America's animal agriculture is anchored in thousands of small, family business operations across this great land, and continues to serve as an impetus for economic productivity. Every livestock farm and ranch is a dynamic ecosystem and economic system. Our work toward achieving nonpoint water pollution control has kept these principles in mind.

The approach we have found to be most successful in implementing nonpoint source control programs is founded upon a voluntary approach with educational and technical assistance and where needed, financial assistance. This assistance is made available through locally-elected and governed soil and water conservation districts. Water pollution abatement plans are developed with individual landowners within the framework of a comprehensive soil and water conservation plan for each farm or ranch in the district. Full landowner involvement in this on-the-land planning process helps insure the full implementation of the plan. The plan thus developed with the landowner and not for him is one which he supports and is committed to carrying out on a voluntary basis.

We believe the results speak for themselves and reflect the success of this approach. As an example in Texas data supplied by the Texas State Soil and Water Conservation Board shows an upward trend in land adequately treated since that agency developed its statewide control strategy for agricultural nonpoint source pollution.

LAND ADEQUATELY TREATED ANNUALLY IN TEXAS

Year	Acres (millions)
1979	9.4
1982	10.7

It is noteworthy that these accomplishments have been made in spite of reduced technical and financial assistance and severely depressed prices for agricultural products.

Our industry has also taken a major initiative to inform all of our members on steps to take in achieving water pollution control from point and nonpoint sources through a publication entitled "A Cattlemen's Guide to Water Pollution Control and 208 Water Quality Planning." Mr. Chairman, I am submitting a copy of this guide developed by the National Cattlemen's Association for the record.

In addition to the erosion problem that occurs on grazing lands as a result of reduced ground cover caused by overgrazing, another major problem frequently and increasingly occurs. This problem is the invasion of excessive noxious woody plants which we ranchers know as brush.

Brush poses a number of major problems contributing to nonpoint source pollution. Brush competes directly with herbaceous plants for water, sunlight, space and nutrients. Brush plants have the ability to literally choke out desirable plants which cover the ground. The result of this competition is bare ground and resultant erosion. Many brush plants also exude a poisonous substance which kills surrounding herbaceous vegetation. Again the result is bare ground and erosion. Finally, most brush utilizes water that could go to recharge underground aquifers. Thus, the result of heavy brush densities is accelerated erosion, reduced water quality, and a reduced supply of clean water. Regardless of whether or not the lands are grazed by livestock, the nonpoint source pollution problem still exists and will continue to worsen unless adequate steps are taken. The purpose of a nonpoint source pollution program should be to improve both quality and quantity of water. When such a program is implemented, the result is more clean, clear water for municipal, industrial, agricultural, wildlife, and aquatic uses.

Water quality means many things to many people, but seldom is the term well defined. Water, and especially good water, is taken for granted perhaps because water is so abundant on our planet. However, the ranching industry knows the value of good, clean water since water is typically in short supply on our nation's grazing lands. Our livestock and our families depend on a continuous supply of water of the highest quality. As scarce as our water supply is, its useable quantity must be increased and pollution reduced or maintained at an acceptable level. Water is our survival.

We are submitting for the record an article which recently appeared in the *Ranch* magazine which illustrates the success of such a program.

Our best estimate is that more than 100,000,000 acres of grazing lands in the United States need brush management applied to control the nonpoint source pollution problem. At today's prices, the cost of reducing the density of brush on these acres would cost between $4 billion and $6 billion depending upon the methods of control required.

Not only does the nation's brush problem represent a major factor contributing to nonpoint source pollution but brush invasions also threaten our near-term and long-term ability to produce food and fiber on our grazing lands. A recent report issued by the Office of Technology Assessment cautions that brush encroachment and invasion poses a major long-term threat to range productivity.

The cost of controlling excessive brush has skyrocketed in recent years. Ranchers are currently spending millions to improve nonpoint source pollution. For example, $40 million to $50 million is spent annually in Texas for brush management. Mechanical control of mesquite, a common invader on southwestern rangelands has increased six to tenfold in the past few years. Chemical control methods have had similar increases but remain the most cost-effective methods for treating large acreages of brush. We believe that integrated brush management systems which employ combinations of brush control methods including mechanical means and environmentally safe chemicals offer the most cost-effective approach to solving our U.S. brush problem, and resultant environmental degradation.

NCA RECOMMENDATIONS

1. The National Cattlemen's Association supports the need for a nonpoint source pollution control program to improve water quality and quantity and to conserve our natural resource base.

2. The cornerstone of our nation's successful environmental and conservation efforts related to water quality has been a voluntary program carried out through nearly 3,000 locally-governed soil and water conservation districts. The NCA desires that policies and programs related to agricultural nonpoint source pollution be kept and carried out through a voluntary approach. Existing agencies and structural arrangements should be utilized for program implementation. As an example, use soil and water conservation districts with assistance provided by the Soil Conservation Service, Cooperative Extension Service, Agricultural Stabilization and Conservation Service, U. S. Forest Service, and cooperative research agencies and institutions.

3. The Clean Water Act amendment relating to a nonpoint source pollution control program should be so structured as to address nonpoint source pollution of agricultural lands in one section and nonpoint source pollution of non-agricultural lands in another. The problems and treatments of these two uses of land are generally nonrelated.

4. A provision for demonstration projects on small hydrologic units (50,000 acres or less) should be included in the nonpoint source control program on agricultural lands. Education and technical assistance should be provided through local soil and water conservation districts.

5. Research studies to identify and quantify the movement and fate of pollutants on agricultural lands under different resource management systems and to test the economic viability of different best management practices should be authorized in any program to control nonpoint source pollution. Whenever possible these studies should be carried out on a small watershed area (100,000 - 300,000 acres in size).

6. If the private sector implements a sound nonpoint source pollution program the federal agencies responsible for federal lands should also implement a sound nonpoint source pollution program. We believe the lessee of federal lands should be permitted to carry out sound nonpoint source pollution programs.

7. Re-define the criteria for making grants to states to also include acreage needing treatment on a watershed basis.

8. Any funds for this program should be new funds. Funds should not be taken away from existing programs that don't have enough funds or technical personnel to carry out programs that are now directly improving nonpoint source pollution.

9. We believe it is important to utilize already established terminology in the nonpoint source control program. For example, "best management practices" is a commonly understood term and should be retained...
10. Consider funding the Rural Clean Water Program authorized in the 1977 amendments to the Federal Water Pollution Control Act.
11. Consideration must be given to increasing useable water quantity -- not just quality alone.

A CATTLEMAN'S GUIDE
to
WATER POLLUTION CONTROL
&
208 WATER QUALITY PLANNING

Published by:

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FOREWORD

The National Cattlemen's Association (NCA) is interested in the improvement of the nation's waters as are most U. S. citizens.

The nation's concern for water quality improvement was brought to focus when Public Law 92-500, the Federal Water Pollution Control Act (FWPCA) Amendments of 1972, was passed by Congress. Several sections of that legislation directly or indirectly related to the nation's farms and ranches. Sections 208 and 402 on nonpoint and point sources of pollution and the Section 404 dredged and fill permit program have the most potential impact on cattlemen. The FWPCA was extended by the Clean Water Act of 1977.

This guide has been prepared to explain how these sections affect cattlemen and to offer some suggestions on what cattlemen can do to help the nation meet its water quality goals.

Cattlemen as conservationists are interested in the soil and water resources. They are interested in improving the quality of life for them and their neighbors. Many have voluntarily joined in the nation's program for water quality improvement. Today, livestock operators have a high level of compliance with the state and federal water pollution programs. I am pleased with this record.

The need to increase world food production makes it most urgent that we all cooperate: cattlemen, environmentalists, government officials, researchers, educators, land managers and the general public. Together we can solve ranch management and environmental issues for the benefit of all mankind.

The 208 Water Quality Subcommittee of NCA's Environmental Management Committee had the responsibility for developing and publishing the guide and I want to express my special thanks to Committee Chairman Bob Bliss and Subcommittee Chairman Walter LeFevre.

J. W. Swan
President
National Cattlemen's Association

INTRODUCTION

Many water quality laws and programs apply to ranching and feedlot operations and this guide is written to explain: (1) how these laws and the water quality management programs might affect you; (2) where you can go to get more information; (3) how you can avoid causing water pollution; and (4) ways you can participate in water pollution decisions affecting your operations. Forms you can use to evaluate your present operations and to plan your future efforts are also provided.

What water pollutants might arise from your ranching or feedlot operations? The experts have identified six major pollutants that might result from agricultural activities: (1) sediment, (2) nutrients, (3) salts, (4) pesticides and herbicides, (5) organic materials, and (6) disease-producing organisms (pathogens). Some examples of pollution: rain washing fertilizers, pesticides or topsoil into streams, rivers or lakes; animal wastes from feedlots spilling into a waterway; irrigation return flows that carry pollutants. These problems, and what you can do to prevent them, are discussed in this guide.

Although the major national law in water pollution control mandates an unprecedented public role in the development and enforcement of water pollution programs there has been relatively little informed public participation in the decision-making processes. This is understandable because with the maze of ever-changing laws and regulations (federal, state and local), the plethora of public hearings and conferences, and the tendency to overuse technical jargon, only those who have closely studied and followed these programs could begin to understand the implications of these programs. For that matter, even the experts are confused at times because the basic laws and policies are not all that clear and there are uncertain purposes and responsibilities in the programs.

It is unwise, however, for cattlemen to let this built-in confusion and complexity discourage them from expressing their views in the public participation process. The issues are too important to you to let them remain the providence of the so-called experts.

Actually, you have the expertise that most of these pollution experts don't have: an intimate knowledge of your business and what is feasible or practical as far as your operations are concerned.

This booklet will not make you an expert in water pollution control programs or clarify all the confusion. It is intended as a basic guide, or starting point, for cattlemen who want to better understand current water quality programs and their impact on cattle raising and feeding. It is an outline of the basics and an explanation of some of the specialized terms that are often used in connection with water quality programs.

It is important for cattlemen to become more aware of water quality programs and issues because we are entering an era of increased attention to the effect of agricultural activities on water quality. As pollution from industries and municipalities are being alleviated, more questions are being asked about what can be done to identify and control pollution from agricultural, forestry and mining activities. These questions also are being prompted because the states are now deeply involved in the areawide planning processes called for in Section 208 of the 1972 Federal Water Pollution Control Act (FWPCA), which, among other things, must consider actions to reduce pollution from agricultural activities. This areawide planning process offers the most potential for public participation and it is crucial for agricultural interests to be represented if they wish their viewpoints and concerns to be adequately considered.

As a matter of fact, the impetus for this booklet arose from the perceived need for cattlemen to better understand this planning process. It was later decided to expand the scope of the booklet to other water quality provisions and programs affecting cattlemen, especially since this would help explain the areawide planning process by placing it in context with these other programs.

HISTORY OF WATER POLLUTION PROGRAMS

Some historical perspective is helpful in understanding today's water pollution programs.

In the early days of this country, America's interest in its waters focused on its use. We were more interested in water quantity than quality. Early legislation dealt with how our waters were to be used for navigation, power, agriculture, recreation, industrial processes and home supplies. We were concerned about water shortgages and water surplus, i.e., floods.

In the past few decades, however, more and more people became concerned that human activities were causing undesirable elements to enter the nation's waters jeopardizing some water uses and perhaps even causing health hazards. One of the first water pollution laws was the Refuse Act of 1899 which outlawed the discharge of pollutants other than municipal sewage into navigable waters without a permit from the Army Corps of Engineers which, while ostensibly a military branch, had begun to take jurisdiction over navigation and flood control projects on such waters. (In 1970, President Nixon used that 1899 law to greatly expand the requirement to obtain a permit before discharges into waters could be made. This extension was based on a broader definition of what constituted "navigable waters.")

It was not until the 1950's however, that water pollution control, or water quality, became more important politically than water development. Congress responded to the increasing public concern over water pollution by passing several laws which increased federal funds for construction of waste treatment plants and sewers and which required states to establish so-called water quality standards for their interstate waters, meaning that the states were to decide what pollutants must be abated to support a chosen water use and were to draw up a plan for achieving that end. If a state didn't do this, or its standards weren't acceptable to the Federal agency, the Federal agency was to step in and set federal standards.

Development of these standards, however, engendered bitter disputes and controversies over what they should be, how the standards should be enforced, what were water "pollutants," and how "clean" must our water be. Although it became clear by the end of the 1970's that considerably more scientific and economic knowledge was necessary to determine what could be done to clean up our waters, this did not deter public interest and public demands that "something be done."

Congress responded - as it usually does when there is public interest - by enacting another bill: the Federal Water Pollution Control Act of 1972 (FWPCA), the most sweeping Federal law on water pollution to date. This Act builds on and "strengthens" past antipollution laws. Despite is many provisions, however, this Act does not lay out a precise roadmap of how "clean water" will be achieved. Rather, its approach is to establish some goals and general procedures, with the details to be worked out later by federal, state and local agencies and by legislative refinement at a later date. (The Act's unclear language has led to a number of court decisions regarding the meaning of certain sections.)

The provisions in the law of most interest to cattlemen are reviewed in this guide.

WATER QUALITY GOALS

The overall "objective" and the two "goals" established in the Water Pollution Control Act of 1972 are important because they influence or "drive" the development of programs and policies to curb water pollution. The Act states that the objective of all water quality programs must be:

To "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Of perhaps more practical effect are the following two national goals in the Act:

1) To reach, "wherever attainable," a water quality that "provides for the protection and propagation of fish, shellfish, and wildlife" and "for recreation in and on the water" by July 1, 1983. This is usually referred to as the interim "fishable and swimmable" goal.

2) To eliminate the discharge of pollutants into navigable waters by 1985. This final goal is generally called the "no-discharge" goal.

Congress establishes these 1983 and 1985 goals even though sponsors of the Act admitted that there were uncertainties as to whether we had the technologies or the institutional systems - or whether in fact our economy can stand the enormous expense - to meet these deadlines. Until they are changed, however, they remain the "marching orders" that guide policy formation and planning. (Budget reductions at the federal and state levels have caused cutbacks in program planning and implementation which make it questionable that these deadlines can be met.)

TYPES OF WATER POLLUTION SOURCES

There are three types of water pollution sources identified in the federal law that are of interest to cattlemen:

(1) point sources, (2) nonpoint sources, and (3) dredge and fill discharges. It is important for cattlemen to understand these terms and the distinctions among them as federal and state governments deal with each in different ways. Drainage from feedlots, particularly larger feedlots, may fall under the point source type. Cattle grazing operations generally would fall in the nonpoint category. Some activities and projects on a farm or ranch could come under dredge and fill regulation.

CONTROL OF POINT SOURCE POLLUTION

Point sources originate from man's activities and are discharges from a specific point, such as the end of a pipe from sewage or industrial plants. Section 402 of the FWPCA requires those who discharge water from such "points" to obtain a federal EPA or state permit (with some exceptions). Permits specify the types and amounts of pollutants that can be discharged into waterways. Violators of the permit provisions are subject to fines and civil penalties.

Federal law has identified cattle feedlots as potential point source of pollution. Every feedlot of 1,000 or more head must obtain a permit. Some smaller feedlots must obtain permits depending upon certain conditions. The table on the following page summarizes which operations must obtain permits.

The pollutants most closely associated with feedlot or confined cattle operations are nutrients, organics, salts, and pathogens. Unless controlled, such pollutants may cause water quality problems. The livestock industry has worked closely and cooperatively with the Environmental Protection Agency and other public interests and it is estimated that more than 96% of the nation's cattle feeding operations has already achieved the 1983 national water quality goal.

EPA REGULATIONS FOR FEEDLOTS

Concentrated animal feeding operations. Exemption: No animal feeding operation requir a NPDES permit if it discharges only in the event of a 25-year, 24-hour storm.

Operations With 1,000 or More Animal Units	*Operations With Less Than 1,000 But With 300 or More Animal Units*	*Operations With Less Than 300 Animal Units*
Permit required for all operations with discharges of pollutants	Permit required if operation (1) discharges pollutants through a man-made conveyance, or (2) discharges pollutants into waters passing through or coming into contact with animals in the confined area.	No permit required (unless case-by-case designation as provided below)
	Operations subject to case-by-case designation requiring an individual permit only after onsite inspection and notice to the owner or operator.	Case-by-case designation only if operation (1) discharges pollutants through a man-made conveyance, or (2) discharges pollutants into waters passing through or coming into direct contact with the animals in the confined area; and after on-site inspection, written notice is transmitted to the owner or operator.

CONTROL OF DREDGE AND FILL ACTIVITIES

(3) Dredge and fill activities may also cause water pollution and Section 404 of the FWPCA requires enforceable permits be obtained from the Corps of Engineers of the U. S. Army for discharges of dredged or fill materials into streams, swamps, marshes and wetlands. Dredged material means material excavated from a stream or waterway. Fill material means material used to create dry land from an aquatic area or used to raise the bottom of a body of water.

Normal farming and ranching activities do not require a permit. Material resulting from usual plowing or harvesting, or from the construction of roads, terraces, stock ponds, settling basins, etc.,are not covered.

If a construction activity will involve direct discharge of dredged or fill material into navigable waters or a water body, however, you should confer with the District Engineer of Corps of Engineers, the State Pollution control agency, or one of the local USDA agencies as to whether a permit is needed. A permit will be needed if you change the water course and also in some cases where construction activity will occur in an artificial wetlands such as those created by excess waters from irrigation. (NCA is not satisfied with the exemption language in Section 404, as amended by the 1970 law, and is working on legislative language that would redefine navigable waters so as to make the exemption more meaningful.)

EPA in conjunction with the Corps of Engineers is required to develop guidelines for use in specifying disposal sites for dredge and fill material covered by a permit. EPA may prohibit use of an area as a disposal site based on environmental considerations.

Obtaining a dredge or fill permit often takes a long time. Notices must be given and opportunity for public hearings provided. By regulation in 1977 and in September, 1980, the Corps of Engineers provided for some activities to be allowed under general and nationwide permits. Also, in states where the Governor has requested, and the Corps of Engineers have approved the state plan, the granting of permits has been transferred to the state.

CONTROL OF NONPOINT SOURCE POLLUTION

Nonpoint sources of water pollution refers to runoffs and seepage of pollutants into groundwater and waterways; that is, they are not specific, identifiable points as point sources are. Nonpoint pollution originates from rainwater and melting snow which carry pollutants along dispersed pathways. Some examples: water running off urban buildings and streets carrying oil, salts, lead, trash, and other pollutants; earth washed into waterways from construction sites; acids drained from mining areas; rain washing fertilizers, pesticides, and topsoil from croplands and pastures.

Runoffs from cattle operations associated with range or pasture grazing (where cattle are not confined for long periods of time in a small area) are potential nonpoint sources of pollution. The 1977 Amendments to the FWCA specified that irrigation return flows would be considered as nonpoint sources.

Generally, unconfined cattle operations are very compatible with a high quality environment. However, there is a potential for problems in areas where animals tend to congregate. If that results in reduced vegetation cover, the area would be susceptible to runoffs that could impact water quality. (See section below on grazing management steps you can take to help maintain water quality or to avoid adverse impacts.)

The 1972 Federal Water Pollution Control Act singles out "urban-industrial concentrations" as a major cause of water pollution and the main focus of the law is on the construction of waste treatment facilities and the regulation of point sources (i.e., industrial and municipal discharges.)

Congress wasn't quite sure how to deal with nonpoint sources of pollution which aren't as easy to define or regulate as point sources are. The federal Act did not establish any regulatory or enforcement system for nonpoint sources such as the permit system which applies to point sources. Rather, it required each state under (Section 305) to evaluate the extent of nonpoint pollution within its borders and to develop some recommendations for controlling such pollution (Section 304 requires EPA to issue guidelines). The Act also required the state management plans or areawide plans prepared under Section 208 to consider feasible measures for reducing nonpoint source pollution.

Although the federal law did not specify any time requirement or level of control for the abatement of nonpoint sources, it has become clear that the national water quality goals (and the state water quality standards required by Section 303) cannot be achieved solely through abatement of point sources. (EPA estimates that more than 50% of the pollutants entering the waterways are from nonpoint sources.) It also should be noted that while the states are given the primary responsibility for pollution abatement, the Act does give EPA the authority to take certain actions if the states do not respond.

The planning and management processes established by Section 208 have become the vehicle for addressing nonpoint source pollution, including that arising from agricultural activities. Therefore, the next section presents summary of the 208 process.

208 WATER QUALITY PLANNING

Although Section 208 of the FWPCA is entitled "Areawide Waste Treatment Management," it pertains to much more than just waste treatment technology. It also covers other approaches to the improvement of water quality.

Section 208 and some other sections of the Act have been hailed as a preservation and protection of the rights of the states and local communities to deal with pollution problems. However, there is a catch: state and local plans and programs must follow guidelines issued by the federal Environmental Protection Agency and must be approved by EPA. EPA has the authority to step in where plans or programs are disapproved.

In summary, these are the main steps in the required 208 process. The Governor in each state must identify specific areas in his state that have serious water quality problems and at the same time designate an organization in each such area to develop a continuing management planning process for the area. If the Governor declines to act, the chief elected officials of local governments in an area may act in his stead. The state is to act as the planning agency for areas not designated by the Governor or local officials.

The designated planning agency must prepare a detailed plan (subject to EPA approval) for dealing with the most important water pollution problems in that area. (Federal grants are made to help pay for the cost of the planning process.) Section 208 area plans must be incorporated into the statewide continuing planning process which Section 303 of the Act requires each state to have. The states must develop and implement State Water Quality Management Plans that will meet the immediate requirements of the FWPCA and eventually the long-range goals of the Act.

Unless the Governor decides a statewide plan for the following is necessary, the 208 area plan must include: "a process to" (1) "identify, if appropriate, agriculturally and siliviculturally related nonpoint sources of pollution, including runoff from manure disposal areas, and from land used for livestock and crop production, and" (2) "set forth procedures and methods (including land use requirements) to control to the extent feasible such sources."

It is EPA policy that the type of regulation appropriate for each nonpoint source category (such as agricultural activities) should be established by the state (208 planning agencies may also suggest regulatory actions for state approval). The nonpoint source program must consider encouraging or requiring so-called "Best Management Practices" on farms or ranches which have pollution problems. This term means the most practical and effective management actions that will minimize water pollution. These include conservation practices such as terraces, contour strips, minimum tillage, etc. (Of course, if there is no nonpoint pollution problem associated with a farm or ranch, then no change in operations are necessary.)

The 1977 amendments to the FWPCA authorized the Department of Agriculture (through the Soil Conservation Service and other selected agencies) to enter into 5- to 10-year cost-share contracts with rural land owners and operators for the purpose of installing and maintaining measures incorporating the best management practices specified in an approved 208 plan. This is called the Rural Clean Water Program.

There continues to be some controversy over how much regulation, or what kind of regulation, is needed to abate water pollution from nonpoint sources. States have taken different approaches. Eighty-four percent of the states now have approved agricultural nonpoint source programs in their water quality management plans and most of these depend on voluntary compliance by the land owner or operator. Only

13 states have adopted land management regulations but most of these depend on voluntary compliance and informal resolution of nonpoint problems before attempts at enforcement are made. Thirty-seven states do not mandate land management or conservation practices (according to a July, 1981 report prepared for the National Association of Conservation Districts.

Sediment, of course, is one of the major pollutants from nonpoint sources and on the following pages is an outline of state laws relating to erosion and sediment control, as prepared by the National Association of Conservation Districts in October, 1979.

SUMMARY OF PRINCIPAL PROVISIONS OF STATE LAWS PROVIDING FOR EROSION AND SEDIMENT CONTROL

(A reference to the particular law will be essential for complete explanation of provisions)

PROVISIONS	Model Act & Alt. Provisions	Delaware	District of Columbia	Georgia	Hawaii	Illinois	Iowa	Maine	Maryland	Michigan	Minnesota	Montana	Nevada	New Hampshire	New Jersey	New York	North Carolina	Ohio	Pennsylvania	South Carolina	South Dakota	Virginia	Virgin Islands
TYPE OF STATE LAW																							
Erosion and sediment control	x	x	x	x	x				x	x					x		x	x		x	x	x	x
Conservation districts						x	x				x					x		x				x	
Water quality and stream control								x				x	x	x					1				
METHODS OF CONTROL																							
Approved erosion and sediment control plan required for land disturbance	x	x	x	x					x	x		x	39		x	x	x	x	2	x	28	x	x
Establishment of soil loss limits							x											x			x		
Permits on basis of an approved plan	x	x	x	x				36	x					x	23			x	x	x	27	x	x
RESOURCES COVERED																							
Natural resources	x	x		14	17	x			x						14								
Land	x	x	x	x	x	x			x				x		x	25					x	x	x
Soil	x	x	x			x	x	x		x	x			x			x	x		x			
Water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Streams and streambanks												x					x		x				

EXEMPTIONS FROM LAW OR FROM PENALTIES

Agriculture and horticulture		33	x	x			3	37	x	19			33				x		4	x		5	x
Mining				x		x				x							x	x		x		x	
Homes or small sites			x	x	x	x			6						x					x		x	
Highways or railways				x			7															x	
Minor land disturbances	x	x	x	x	x	x													4	24		x	
Cost sharing assistance unavailable	x	x					x	x										x					

STATE CONTROL AGENCY

Participating agencies:

Soil and Water Conservation	x			x			x				x				x	x	x	x			x	x	x
Natural Resources		34		x			x		x	x		x					x	x					
Other			30	15	18	32		38		20		8	40	42	21		29	13	9				
State responsibilities:																							
Develop policies and programs	x	x				x	x			x	x				x		x		x			x	
Develop criteria standards, guidelines	x	x	x	16	x	x			x	x	x	x	x		x		x	x	x		x	x	
Adopt rules and regulations	x	x		x						x	x	x	x	x			x	x	x		x		x
Approve local programs or plans	x	x	x			x	x		x	x	x				x		x	x	x			x	x
Perform enforcement functions	x	x	x	x		x			x				x				x	x	x		x		x
Assist local agencies with:																							
Ordinances, regulations, and programs	x		x			x	x		x						x		x						
Enforcement			x			x			x	x								x					
Cost sharing	x	x				x	x				x	x			22			x					
Approve state and federal agency plans	x	x				x			x														
Adopt program if local agency fails to do so	x	x		x	x	x											x	x				x	x

NOTE An "x" indicates that the respective law contains the provision listed; numbers refer to footnotes.

SUMMARY OF PRINCIPAL PROVISIONS OF STATE LAWS PROVIDING FOR EROSION AND SEDIMENT CONTROL

PROVISIONS	Model Act & Alt. Provisions	Delaware	District of Columbia	Georgia	Hawaii	Illinois	Iowa	Maine	Maryland	Michigan	Minnesota	Montana	Nevada	New Hampshire	New Jersey	New York	North Carolina	Ohio	Pennsylvania	South Carolina	South Dakota	Virginia	Virgin Islands
LOCAL CONTROL PROGRAM																							
Participating local agencies:																							
Conservation districts	x	x	31	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x
Counties	x	x		x	x				x	x		x	41		x		x	x	x	x	x	x	
Cities	x	x		x					x	x			41		x		x	x	x		x	x	
Towns or townships	x								x	x		x					x						
CONSERVATION DISTRICT RESPONSIBILITIES																							
Review and approve erosion and sediment control plans	x	x		x				x	x	x		x			x	x	x		x	x	26	x	x
Establish soil loss limits							x																
Assist county or other local agency develop ordinances or regulations		x			x				x	x								x					
Adopt standards, criteria, guidelines			31			x			x		x	x									x	x	
Adopt rules and regulations							x					x											x
Perform enforcement functions 10	x	x				x	x		x	x		12			x			x	x	x	x	x	
Adopt an erosion and sediment control program	x	x				x			x		x						x				x	x	x

COUNTY, CITY, TOWN, OR TOWNSHIP RESPONSIBILITIES

Adopt programs	x	35											41				x		x		x	x	
Review and approve plans	x								11	x							x	x	x				
Adopt ordinances	x			x	x				x	x							x	x					
Issue permits on basis of approved plan	x	x	x						x						23				x			x	
Perform enforcement functions 10	x	x	x						x	x					x		x	x	x	x	x	x	
Issue rules and regulations	x								x								x	x		x			

FOOTNOTES

1. Authorities contained in laws and regulations
2. Acceptable plan required at site of activity
3. Erosion control practices may not be required on land used for such purposes only
4. Exempted from permit requirements only
5. Except as to grading, excavating, or filling
6. Except in Calvert County
7. Within city limits
8. Department of Fish and Game
9. Department of Environmental Resources
10. May include permits, inspection, complaints, violation procedures, fines, other legal actions
11. In municipalities not within a district
12. Special provisions for emergency actions
13. Division of Soil and Water Districts
14. Air and other resources
15. Division of Environmental Protection of the Department of Natural Resources
16. Established by law
17. And other resources
18. Department of Health
19. Persons engaged in agriculture who have agreements with conservation districts are not subject to site plans, land use plans, or permits, but are subject to enforcement procedures
20. Department of Agriculture
21. Secretary of Agriculture and Commissioner of Environmental Protection
22. May assist with grants
23. Certification
24. Emergency repairs
25. Agricultural land as described in the law
26. Required where district determines that an agricultural land-disturbing activity is violating adopted standards
27. Permit issuing authorities must require compliance with district standards
28. Department of Public Works
29. NC Sedimentation Control Commission
30. DC Department of Environmental Services
31. DC Agencies engaged in land disturbing activities
32. State Department of Agriculture
33. Certain specified exceptions
34. Department of Natural Resources and Environmental Control
35. Political subdivisions not precluded from adopting more stringent programs
36. Waste discharge license required for discharge of any pollutant
37. For agricultural activities having an approved erosion and sediment control plan or conservation plan
38. Board of Environmental Protection
39. Initial design of project must provide measures to prevent pollution
40. State Environmental Commission
41. State Department of Conservation and Natural Resources may delegate authority as to diffuse sources (non-point)
42. NH Water Supply and Pollution Control Commission.

CATTLEMEN'S ROLE IN 208 PROCESS

Good public involvement at the local level is one of the goals of the 208 process in developing strategies for abating nonpoint pollution. Citizens with varied occupations and interests are invited to participate in the process, including public meetings and serving on various committees or task forces. Much of this process has been completed; but in many areas there is still opportunity for involvement. In addition, there may be future revisions of present plans. Cattlemen should be involved in these local effors. Information on future meetings may be obtained from one of the agencies listed on page or from your state water quality agency.

CATTLEMEN AS ENVIRONMENTALISTS

Cattlemen who depend on soil and water resources to produce the nation's supply of beef must maintain the quality and productivity of these resources. Conservation and water quality measures they take or install not only improve their own resources, but the enhanced fish and wildlife habitat, erosion, control, and improved water quality benefit vs all. (The public benefits from private conservation efforts are often overlooked!)

MANAGEMENT RECOMMENDATIONS FOR CATTLEMEN

A. Grazing Management:

Properly managed, grazing activities will not have adverse impacts on water quality. Good range and pasture management will not only increase forage but improve water quality.

When adverse impacts do occur, they are most often due to soil, salts, or pathogens being washed into streams or lakes. Here are some common-sense suggestions for avoiding pollution problems:

1. Maintain adequate vegetative cover. Vegetative cover reduces runoff and controls erosion. Management practices which help to maintain vegetative cover usually involve distributing cattle so they don't overgraze some areas and varying periods of use. Some examples of management techniques that would minimize the impact of grazing in sensitive watersheds would be use of grazing systems (such as rotation grazing), development of alternate water sources to attract animals away from streams, placement of minerals and salt away from water areas.

2. Carefully plan your watering and feeding sites. Most nonpoint source pollution problems occur in the vicinity of watering, feeding, or loafing areas where animals tend to congregate most often. Such concentrations can have an impact on vegetation and on the condition of the soil so that erosion is likely. You should place supplemental feeding and salting stations a reasonable distance from sensitive water quality areas (streams and water courses). Likewise, you should try to plan your shading facilities so as to keep cattle away from such areas as much as possible.

3. Use structural techniques to abate pollution. Sometimes it may be impossible to locate winter-holding, supplemental feeding, or shade facilities outside of sensitive water quality areas. In such cases, diversion terraces and vegetative filter strips can be used to help keep sediment, nutrients, salts and organic matter out of the water.

4. Follow the instructions on pesticide labels. Pesticides must have a EPA-approved label indicating whether they are for general use (under specified conditions) or for certain limited or local uses. The label guidelines should be carefully followed so as to avoid nonpoint pollution runoff. Caution should be taken to prevent accidental spills and in the disposal of empty containers.

5. Be wary of toxic substances. Toxic pollutants can come from pesticides, chemical and oil spills, and urban sewage sludge or waste water applied to your land has been properly treated in accordance with state water pollution requirements.

B. Feedlot Management:

Good management, is also important in preventing water pollution from feedlot operations. The major potential pollutant, of course, is livestock waste and the goal of good management is to prevent such waste from getting into natural waters. As previously indicated, almost all feedlots are in compliance with the 1983 national water quality goal and most operators are current with the latest waste management techniques. A full review of these techniques are beyond the scope of this guide but appropriate management practices include:

1. Use of diking or other means to divert runoff from entry into the feedlot.

2. Control feedlot runoff and detain in ponds or lagoons.

3. Prevent build-up of solid wastes on feedlots by periodic removal.

4. Dispose wastes through land utilization or by other environmentally sound means.

5. Take steps to avoid creating a "nuisance." Odors and flies associated with animal wastes and, ironically, with holding ponds used to abate water pollution have sometimes led to nuisance complaints and lawsuits. If such a lawsuit develops, a cattleman may need to document actions he has taken to avoid the problem. Appendix B of this guide is a detailed discussion of this issue.

ASSISTANCE AVAILABLE TO CATTLEMEN

Since the 1930's a number of federal, state, and local programs of assistance to farmers and ranchers have been funded. These programs have resulted in increased research, education, technical assistance, cost-sharing for measures installed, loans, tax incentives, etc. They have encouraged and assisted farmers and ranchers in carrying our conservation and water quality measures which generally have long term public benefits.

Some funding by the private owner or operator is generally required for such a person to receive any federal, state, or local incentives assistance. Currently many of these cost-share programs are not available. Others have rigid program compliance requirements as a condition. Before applying for cost-share assistance funds, cattlemen should first find out whether there are any strings attached to such aid.

Information on available assistance may be obtained from the following agencies:

		Type of Assistance
1.	Soil and Water Conservation District	- Conservation and water quality planning for area.
		- Technical assistance.
		- Conservation measures.

		Type of Assistance
		- Cost-sharing in some instances.
		- Information on local programs.
2.	Local pollution control or water quality agency	- Information on local programs that they administer, including any 208 program.
		- Technical guidance, in some instances.
3.	County Board of Supervisors	- Information on any local regulatory program.
4.	Soil Conservation Service, USDA	- Technical assistance for designing and planning conservation and water quality improvement practices.
		- Range improvement advice.
		- Cost-sharing for conservation practices in Great Plains area and in some watersheds.

			Type of Assistance
5.	Agricultural Stablization and Conservation Service, USDA	-	Cost-sharing for conservation, and water quality improvement practices, including certain range improvements.
		-	Assistance varies depending on locally-developed program plans.
6.	Forest Service, USDA	-	Through state forestry agency: technical assistance for tree planting.
		-	Range management plans and technical guidance on FS lands. Information on incentives programs
7.	Farmers Home Administration, USDA	-	Loans for installation of conservation practices.
		-	Operator loans.
8.	Cooperative Agriculture Extension Service, USDA	-	Information on range improvement, conservation, water quality, pesticide useage and related issues.

		Type of Assistance
9.	Bureau of Land Management District Office	- Range management plans and guidance on BLM lands.
		- Technical assistance.
		- Information on incentives programs.

A CATTLEMAN'S SELF-EVALUATION FORM

This self-evaluation form is designed for your convenience in reviewing your cattle operation in regard to the water quality issues previously discussed in this guide. Give each statement below a rating of 0 to 5, with 5 being the ideal. Thus, the lower-scoring situations are areas where you may need or want to make some changes.

Score

1. The pasture or range has a good vegetative cover overall. _____
2. A good vegetative cover is found near all streams. _____
3. There is no soil erosion from salting areas. _____
4. Animal holding areas are located 200 or more feet from any streams or sensitive water quality areas. _____
5. Land between streams and holding area has good vegetative cover at all times. _____
6. Rainfall runoff concentrations are diverted from feedlots or holding areas. _____

		Score
7.	Runoffs from roadways and buildings are diverted away from feedlot or holding areas.	______
8.	There are no water courses through holding areas.	______
9.	Diversion terraces or special vegetation filter strips are maintained between working or salting areas and sensitive water quality areas.	______
10.	Cattle watering tanks have water controlled drainages.	______
11.	Manure is spread on unfrozen land early in day and plowed under within one to two weeks.	______
12.	The spreading of manure on steeply sloping land without a cover is avoided.	______
13.	Watershed areas having soil erosion problems are getting special attention.	______

Score

14. A grazing management plan is being carried out to improve quantity and quality of vegetative cover, and hereby reduce pollutant runoff from the pasture or range. ______

15. Special attention is given to disposal of empty pesticide containers. ______

16. Special care is being taken to avoid nuisance complaints from the community (flies, odors, etc.). ______

A CATTLEMAN'S PLANNING FORM: CONSERVATION AND ENVIRONMENTAL GOALS

In the previous section, a form for evaluating your present operations was presented. Here we present a form that you may want to use to make some private resolutions to yourself about what you plan to do in the future to help improve water quality. (You may want to check the completed form a year or two from now to see how well you've carried out your resolutions!)

It is my desire to assist the Nation in meeting it's conservation and environmental goals as I carry out my cattle production operations.

During the past two years I have assisted by ______________________________

____

____

____

____

____

____

(such as member of conservation board, attending local water quality meetings, developing erosion control plan, carried out improved pasture or range measures, etc.)

Some of the areas where I can become more involved in the next two years (check)

Attend local meetings ____
Member of local Water Quality Committee ____
Give speeches to civic and local groups ____

Attend state meetings ____
Invite visitors to farm or ranch ____

To improve water quality and the environment from my operations in the next two years I plan to ____________

____

____

____

____

____

____

APPENDIX A

Definitions

Point Sources - End of pipe discharges from municipalities, industries, farms or ranches, and mines.

Nonpoint Sources - Diffuse type runoff of pollution caused by rainfall, including stormwater runoff from cities, farms, ranches, and forest, erosion at construction sites, and irrigation return flows.

Dredge Material - Material that is excavated or dredged from waters of the United States.

Fill Material - Any material used for primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a water body.

Navigable Water - Waters of the U.S. subject to ebb and flow of the tide and/or are presently used or have been used in the past to transport interstate commerce.

Wetlands - Those areas that are inundated or saturated by surface or ground water at a duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. This may include swamps, marshes, bogs, and similar areas.

APPENDIX B

WHAT FEEDLOTS CAN DO TO HELP AVOID NUISANCE LAWSUITS

(A technical bulletin prepared for the NATIONAL CATTLEMEN'S ASSOCIATION)

By
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EDITOR'S NOTE: *Control of odors, water pollution, dust and flies has been and will be an increasing problem for many feedlot operators. In the accompanying article, two consultants to NCA's Environmental Management Committee discuss these problems and offer suggestions to cattlemen. Particular attention is given to steps to be taken to avoid odor nuisance lawsuits, but other problems in relations with the public also are discussed. One difficulty now is that legal problems may grow because there has not been enough basic research to make possible needed technical advances in control. Dr. Sweeten is extension agricultural engineer-waste management, Texas Agricultural Extension Service, College Station, Tex. Dr. Miner is head of the agricultural engineering department at Oregon State University, Corvallis, Ore. This article is an expanded version of an article which appeared in the July 6 BBB. It is suggested that members save this article for future reference if nuisance complaints are a possibility.*

Cattle operations are often the target of nuisance complaints resulting from odors, flies, dust, noise or water pollution. Recent nuisance lawsuits decided against cattle feedlots have aroused new interest in ways to avoid such legal actions. When a lawsuit is encountered, the best possible defense needs to be made to document that a nuisance does not exist, to avoid an injunction or to minimize assessed damages. Technical and legal aspects of odor nuisance are reviewed in this paper. Also discussed is control of water pollution, dust and flies.

Legal Concept of Nuisance

Nuisance is broadly defined as anything which unreasonably interferes with the normal use and enjoyment of property. A **private nuisance** is one keeping only a few persons from enjoyment of private property. A **public nuisance** is one that keeps a considerable number of people from enjoying rights of the public as a whole.

Public nuisance suits are usually carried by state or local agencies to the courts. Relief may consist of a moderate fine, specific corrective orders and/or an injunction. By contrast, private nuisance suits, which are carried out by one or a limited group of neighbors against a person or company, often ask for large sums of money for alleged actual damages, such as decreased property values, and perhaps punitive damages or an injunction. Damages are more frequently awarded than is an injunction.

Questions of degree are crucial: How many persons are affected? How severe is the nuisance? Is it temporary or permanent, continuous or intermittent? Can it be corrected? Evidence supplied to answer these questions will have a large bearing on the outcome. A cattleman needs to hire the best trial attorney and best available consultants to develop and present evidence favorable to his side. An expense of $15,000 to $20,000 would be typical. Therefore, the cattleman and his attorney need to decide very early if a successful defense can be developed and whether it is worth the cost.

In the public sector, odors and dust are usually prosecuted under nuisance provisions of State Clean Air Acts. Fly and rodent problems in many states are handled by separate agencies as a public health nuisance, often regulated by local government. Water pollution problems are seldom handled as nuisance suits, but rather under state and federal water quality laws that prohibit discharge without a permit. State agencies try to work with the producer to help solve his problem, but, in the final analysis, they will bring suit if a severe problem incapable of permanent solution persists.

The U.S. Environmental Protection Agency has neither the authority nor any plans to regulate odors at this time.

Innovative approaches designed to regulate feedlot odors and dust include:

a. County agricultural zoning (Nebraska).
b. Construction permits for new feedlots (Texas) or lagoons (Iowa).
c. Property line odor intensity limits (Colorado and Wyoming).
d. Objectionability criteria (Iowa)—number of people affected, frequency, duration, etc.

The North Carolina legislature recently passed a law (HB 481) that states: "No agricultural operation or any of its appurtenances shall be or become a nuisance, private or public, by any changed conditions in or about the locality thereof after the same has been in operation for more than one year, when such operation was not a nuisance at the time the operation began; provided the provisions of this subsection shall not apply whenever a nuisance results from the negligent or improper operation of any such agricultural operation or its appurtenances."

In another important section, the law invalidates "any and all ordinances of any unit of local government now in effect or hereafter adopted that would make the operation of any such agricultural operation or its appurtenances a nuisance in the circumstances set forth . . ." The Alabama legislature previously had enacted a similar bill to protect against encroachment of non-agricultural land uses.

Some Recent Nuisance Cases

Case law is informative but not conclusive on the subject of nuisance. As a Massachusetts court said in 1914, "The law of nuisance affords no rigid rule that can be applied to all instances."

In early 1979, a Nebraska jury awarded a farm family—themselves cattle producers—about $50,000 in damages for odor, rodent and dust related nuisance allegedly created by a nearby 10,000-head feedlot. In March 1979, the Texas Court of Civil Appeals upheld a trial court decision that livestock pens, built 80 years ago to receive, sort, and ship livestock, are producing odors "by processes other than natural." Further, the court stated that concentration of livestock "would not now be normal in this vicinity," since homes and businesses have sprung up around the livestock facility. An El Paso District Court closed down an old feedlot in 1975 that had been engulfed by residential, commercial, and industrial property.

On the other hand, a large new Texas meat packing plant was successfully defended in 1978 against claims of property value reduction brought by an adjacent farmer who "was there first" and who allegedly suffered nuisance from odors and flies.

In a famous nuisance case, the Arizona Supreme Court decided in 1972 that Spur Feedlot should be closed but that the suing land developer had to pay the feedlot "for a reasonable amount of the cost of moving or shutting down." Payment to Spur Feedlot was necessary because the developer had brought homeowners into a previously agricultural area.

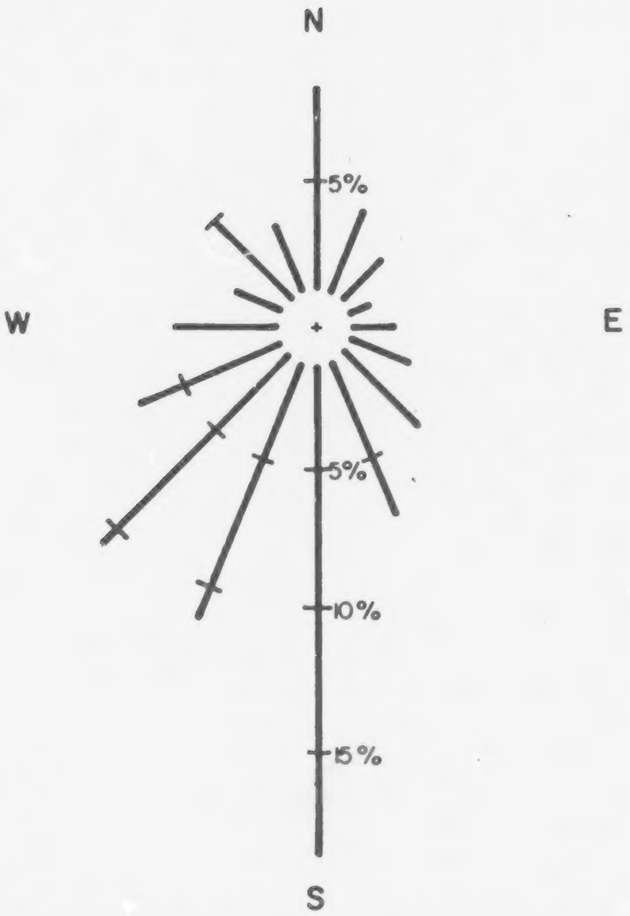

FIGURE 1. Surface wind rose diagram for Amarillo, Texas, showing average annual probability of wind from a given direction. (Average wind speed = 12.1 knots, or 13.9 mph.)

A Kansas court held in 1958 that a residential landowner may not have relief if he knowingly came into a neighborhood reserved for industrial or agricultural endeavors and has been damaged thereby. Similarly, during the mid-1970's, would-be land developers were unsuccessful in claiming damages for reduced property value attributable to odors and flies from two established feedlots in Taylor and Hood Counties, Texas.

With the uncertainty of the outcome and the sure expense of defending against nuisances, cattle producers need to understand certain technical principles and practices involved in avoiding and abating nuisance conditions.

Response to Odors

Human response to odors is primarily subjective. Livestock odors are not hazardous to human health at the concentrations at which the compounds have been measured adjacent to a feeding facility. Rather, odors constitute an annoyance.

Odors can be characterized according to their frequency, intensity, duration and offensiveness (the so-called "FIDO factors"). Nuisance complaints result when these characteristics exceed reasonable limits. For instance, the Iowa Air Quality Commission stated that for a complaint to be "actionable," the odor must occur at a **frequency** of 10 or more days per 30-day period for a **duration** of 12 or more hours on each of these days. Experience has shown that an odor **intensity** above 7 dilutions to threshold (DT) will cause complaints, while an odor intensity above 31 DT may be described as a serious nuisance if it persists. Cattle feedlots rarely get below 7 DT.

Odor intensity is usually measured by using a Scentometer (a portable, plexiglass, hand-held device costing about $150) which establishes different dilution ratios of odorous air to odor-free air. The human nose is used to select the highest dilution at which odors can be detected. Odor **offensiveness,** on the other hand, is very difficult to quantify for purposes of writing standards.

Approaches to Odor Control

Odor control methods are imperfect to say the least. But cattlemen can and should strive to minimize odor frequency, intensity, duration, and offensiveness.

Separation of the odor source (feedlot) from the receptor (neighbors) is the best method. Odor concentrations diminish rapidly with distance downwind of an odor source. For example, ammonia levels decreased by 80-95 percent within 400 feet of a cattle corral in a California study. Odors from a ground-level source are calculated to undergo 99 percent reduction in odor concentration over a distance of one to two miles, depending on atmospheric stability. A distance of 300 feet will usually produce an order of magnitude reduction in odor intensity. But, experience has shown that odors can drift for several miles at low, yet detectable, intensities. So distance alone is not a complete answer.

Prevailing winds can be determined from hourly observations recorded at major U.S. Weather Service installations. Computerized summaries showing probability of a given wind direction, wind speed and atmospheric stability class ("STAR Program") are available for about $25 from the National Climatic Center, U.S. Department of Commerce, Federal Building, Asheville, N.C. For example, the wind direction frequency chart for Amarillo (FIGURE 1) shows that there is only an 11% chance of wind out of the quadrant Northeast to East-Southeast. But, the wind blows 48 percent of the time out of the South-Southeast to Southwest quadrant. In this instance, feedlot location could make a lot of difference to both neighbors and juries.

The second basic approach to odor control is to keep manure dry as much of the time as possible. Odorous compound formation is generally the product of bacterial decomposition of manure. Offensive odors are released when manure is allowed to undergo anaerobic (or septic) decomposition. This occurs when oxygen is excluded. By maintaining a manure-covered surface in a relatively dry condition (less than 40 percent moisture) anaerobic decomposition at the feedlot surface is minimized.

TABLE 1. Summary of Odor Intensities at 17 Texas Cattle Feedlors, 1973-75

Location		Condition	Odor Intensity, DT
1.	Feedlot surface	Dry	7
2.	Feedlot surface	Well-Drained; Moist	7-31
3.	Feedlot surface	Poorly-Drained; Damp	31
4.	Feedlot surface	Wet; Ponded	31-170
5.	Runoff retention ponds	------	31-170
6.	Manure stockpiles	------	7-170

Intense, offensive odors are most prevalent when pens are drying out after rainfall, when water stands on the feedlot surface, or when runoff holding ponds contain relatively fresh solids. Odor intensities of 170 dilutions to threshold (DT) are common under these conditions. This means that it takes 170 cubic feet of odor-free air to dilute one cubic foot of odorous feedlot air to the point where half the human panelists can detect the odor and half cannot.

Odor intensity values measured at 17 Texas feedlots (TABLE 1) suggest that the lowest attainable odor intensity for an open cattle feedlot may be 7 DT. Under damp conditions an odor intensity of 31 DT is typical. Water ponding on the feedlot surface can cause higher readings. Odor levels of 31 to 170 DT are typical near runoff settling basins and retention ponds soon after rainfall.

A strategy to lessen the intensity and duration of feedlot odors after rainfall consists of these steps:

1. Maintain rapid pen drainage—pen slopes should be 3-4%, ideally with no potholes.
2. Keep manure solids out of runoff holding ponds—runoff collection ditches should empty into an easily-maintained settling basin or channel (0.1-0.3% slope) to capture settleable solids before liquids are drained to holding ponds.
3. Water trough maintenance to prevent overflows and leaks.
4. Maintaining dust control systems to prevent leaks, nozzle stoppage, and low pressure that cause wet spots around sprinkler nozzles.

Another Basic Approach

The third basic approach to odor control consists of keeping a minimum quantity of manure and wastewater on hand. This involves:

1. Rapid dewatering of runoff holding ponds.
2. Prompt removal of settled solids from debris basins and channels.
3. Frequent collection of loose surface manure which soaks up rainfall and delays recovery after rainfall.
4. Maintain an undisturbed manure pack 2 to 3 inches thick just above the soil surface to seal off infiltration and to maximize surface runoff. Elevating scrapers and road graders can collect the aerobic manure layer and leave an undisturbed manure pack. However, wheel loaders are not designed for such precise manure collection.
5. Maintain markets for manure to limit the manure inventory, and limit the size of the working face of stockpiles.
6. Haul manure to fields promptly after stacking in pens. Freshly stacked manure produces odor intensities measured at 170 DT at the same time that 7 DT may be registered in an adjacent uncollected pen.

Manure spread on cropland produces temporary odors until drying occurs. Ways to avoid odor complaints from land application include:

1. Select a field downwind of neighboring residences.
2. Spread manure in the morning to allow maximum drying time.
3. Spread manure when the wind speed exceeds 9 mph for maximum dispersion and do not spread when wind is less than 5 mph.
4. Plow under surface-spread manure to control odors and conserve nitrogen.

Confinement cattle feeding facilities with liquid manure management systems have different types of odor control problems, but control technologies are available nonetheless. Special manure handling methods must be used to keep cattle clean and dry and prevent anaerobic conditions. Successful practices include daily scraping of solid floors; use of slatted floors with hydraulic flushing or cable scraping of underfloor pits; and flume floors with continuous low-volume flushing. Covered manure storage tanks control the release of odorous gases generated in stored manure. When the soil is suitable and neighbors are close, direct soil injection is a valuable technique for liquid manure disposal. Mechanically aerated lagoons can be effectively used to maintain low odor intensities where biological treatment is required and odor control is important.

Anaerobic lagoon systems, where permissible to install, need to be designed with adequate capacity and managed carefully to avoid overloading, which is accompanied by fly and odor problems. Design criteria vary from state to state, primarily because of climate.

Additional Practices

Some additional practices worthy of consideration include:

1. Landscaping to shield feedlots and holding ponds from the public view;

2. Chemical treatment of wet areas on the feedlot surface with oxidizing chemicals such as potassium permanganate or hydrogen peroxide, odor absorption chemicals such as zeolite, or bacterial/enzymatic products (digestive deodorants).

Odor control chemicals are widely available. From limited data, their effectiveness has appeared promising in some instances and disappointing in others. Field trials are suggested before major expenditures are made in this area.

Judges and juries are generally sensitive to not only the severity and frequency of an odor nuisance, but to the degree to which the feedlot management has attempted to control odors. Hence, it is appropriate to document and publicize whatever odor control steps are taken. These measures further document the positive intention of management and further reduce the possibility of punitive damages being assigned.

Managing Water Pollution Abatement Systems

The cardinal rule for water pollution contol is very simple: "Keep the crap out of the creek." Essentially all major cattle feedlots have installed adequate water pollution abatement systems designed to protect against discharge from the 10-year or 25-year frequency, 24-hour duration storm. However, maintenance of these systems remains a problem. Many feedyards simply do not dewater holding ponds on schedule, as required. In Texas, for example, 14 days are allowed for dewatering after the ponds get 75 percent full. Delayed pumpdown of holding ponds increases the likelihood of an illegal discharge and prolongs odor production. Therefore, cattle feeders should not try to save runoff, but rather should dispose of it as soon as the soil is dry enough to accept it.

Because of its salt content, feedlot runoff generally does not make good irrigation water without dilution water being added. Salinity increases the disposal problem. Professional guidance may be needed to design a runoff disposal plan to fit your soils, crops and water quality.

Continuous overflow watering systems tend to keep holding ponds half-full of water and to keep settled solids wet and odoriferous. On the positive side, they add valuable dilution water for disposal and runoff. If overflow drinking water systems are used, a special effort is needed to keep the holding ponds pumped down to less than 25 percent full.

Settled solids carried by feedlot runoff pose a special management problem as well. It is inefficient and expensive to remove these solids from runoff holding ponds. The most commonly used equipment has been draglines, wheel loaders and elevating scrapers. It often takes a major drought to dry up the holding ponds enough to collect and haul settled material in a solid form. Hydraulic dredges and trailer-mounted centrifugal pumps have been used to pump out settled solids in a slurry form.

The best solution is to remove settleable solids before they reach the holding pond. Research shows that debris basins and flat baffled channels can be designed to remove 75% of total solids. Moreover, these facilities are much easier to clean than holding ponds.

Groundwater pollution is another frequent complaint against feedlots. Data are available, however, which document that operating cattle feedlot surfaces are impermeable and hence do not contribute. If runoff retention ponds are well sealed, their contribution should also be slight. Where groundwater contributions do occur, nitrates are the best indicator. Samples collected from feedlot and surrounding wells can be used to document whether such a problem exists. The pollution of groundwater is generally much less frequent than the number of accusations.

On balance, feedlots are doing a good job of water pollution control. For example, in Texas the last in-stream fish kill attribued to a cattle operation occurred seven years ago. But odors and management problems from these water pollution control systems still cause concern.

Dust Control

Research sponsored by the California Cattle Feeders Assn. showed that properly sprinkled feedlots generated 18 times less dust than untreated lots. Dust levels rose 850% when water treatment was discontinued for seven days. Steps to feedlot dust control consist first of removing excess manure before the dry season arrives. The second step is to apply water when the surface manure moisture content falls to around 20%. Recommended initial application rates should be at least one gallon of water per square yard per day (0.18 in. per day) until 25 to 30% moisture content is reached. Thereafter, water should be applied at 1/2 to 3/4 gallon per square yard per day (0.09 to 0.13 in. per day) as long as dry weather persists. As little as 1/4 gallon per square yard per day may be needed for recently scraped pens. Daily watering is better than alternate day watering.

Water application equipment consists basically of permanent (solid-set) sprinklers, portable sprinklers (large bore), water tankers and water trucks. Increased cattle stocking rates apparently provide some relief also.

Fly Control

Flies originating from feedlots pose a nuisance problem primarily, and to a lesser extent serve as potential vectors of pathogens. Complaints about flies at livestock feedlots are common and are usually associated with odor complaints.

Complaining neighbors, lawyers, and health authorities often fail to recognize that cattlemen have significant economic incentives to control flies and may already be spending large sums of money to accomplish this. Nor are complainants likely to distinguish between flies produced at the feeding operation and flies that migrate several miles upwind toward the feedlot. Some professional entomologists believe that well-managed feedlots kill more flies than they produce.

Extension field studies in Nebraska demonstrated that a stable fly population of 50 flies per animal reduced average daily gains by 0.2 and 0.4 lbs/day when cattle were on growing and finishing rations, respectively. Other economic incentives for fly control include employee irritation and feeder-customer relations.

The fly breeding potential around feedlots is enormous. A pound of manure solids can yield 650 to 700 fly larvae in a week under ideal conditions. Under warm summer temperatures, approximately 10 days are required for development of the housefly from egg to adult. The life cycle is usually completed in 20-30 days, during which time females may deposit as many as 1,000-2,000 eggs total. It is common to get 10-12 generations of flies in one summer.

Control at the larval stage (days 1 through 5) is the key. Good control is dependent upon removing three factors that contribute to larval development: food, moisture, and/or shelter. Food materials—spilled feed, horse and cattle manure--need to be removed frequently. Larvae will not develop if manure is too dry (less than 30% moisture) or is in a liquid state (over 95% moisture). Larvae can be desiccated if manure is collected and thinly spread under dry conditions. Wet spots should not be allowed to develop on the feedlot surface.

Trampling that occurs in feed pens minimizes larval development. Fly larvae are no match for a 1,000-pound steer! However, places where manure falls but cattle hooves seldom reach prove especially troublesome as fly breeding sites. These locations include fencelines, feedbunks, hospital pens, horse pens, cattle processing areas, feed mills, runoff settling basins and runoff holding ponds.

Recommendations

From the available information on feedlot fly control, several recommendations can be made:

1. Design feedlot to allow proper surface drainage and easy waste removal. Prevention of potential fly breeding areas affords the best means of control.
2. Correct pen drainage problems to avoid potholes where odors and fly breeding can occur.
3. Correct overflowing water troughs.
4. Remove manure from pens within five days after cattle removal in order to prevent larval development.
5. Frequently remove manure and spilled feed from important fly breeding areas such as fence lines, feed bunks, hospital pens, horse pens, truck washing stations and receiving and shipping areas.
6. If sprinkling is used to control dust or relieve cattle heat stress, make sure sprinkler heads do not leak. Proper waste management becomes even more important in fly control if a sprinkler system is utilized.

7. Prevention of floating crusts on manure treatment lagoons, used in connection with confinement buildings, by providing the proper lagoon liquid volume. Control fly breeding along lagoon banks by refilling with water after pumping and by reducing excess vegetation along the banks.

8. Remove settled solids from feedlot runoff collection channels, debris basins and embankments surrounding runoff holding ponds.

9. Use chemical controls in conjunction with a good sanitation program and not as the sole means of control.
   a. Use of space sprays will generally reduce adult fly populations for short periods of time.
   b. Use of residual sprays on the resting sites of flies provides the most lasting control.
   c. The use of baits is a questionable control effort.
   d. Apply larvicides to areas of intense larval development such as manure stockpiles, hospital and horse pens.

The majority of feedlot managers are utilizing these fly control methods, according to a 1979 survey conducted by the Texas Cattle Feeders Assn. and the Texas Agricultural Extension Service. The feedlots that responded to the survey customarily apply pesticides at 1 to 7 day intervals by methods that include (in order of preference) fly bait, ground sprayers, ground foggers, aerial application and feed-grade larvacide.

The Future

Many unresolved problems regarding nuisance will be carried forward into the 1980's. Cattlemen have an enormous stake in deciding issues such as establishment of agricultural zoning or enactment of odor intensity standards. Broad protection against nuisance suits afforded by new laws in Alabama and North Carolina looks appealing.

Unhappily, one thing is certain—legal developments are far more likely to occur than technical breakthroughs at the present pitifully low levels of research funding on odors. Basic research is needed to unlock secrets of how odors are generated and how they can be affordably controlled. Applied research to evaluate these discoveries in the field could swiftly follow. Reliable data on odor transport and guidelines concerning "safe" separation distances are sorely needed. Understanding the complexities of molecular interactions that transform odors will take more time.

Lately, leading odor researchers have agreed that complex odors such as manure vapors can best be measured by human perception. Several useful devices are available now to achieve this. Debates over exactly which instrument and set of procedures are optimum may run into the 1990's.

Can the livestock industry afford to wait until the scientists complete their work or EPA decides to dictate the methodology, technology and standards? Would it not be better to "get the facts" and be in the driver's seat if and when state and federal odor regulations are written?

STATEMENT
of
Harvey Davis, Executive Director
Texas State Soil and Water Conservation Board
to
The Senate Environment and Public Works Committee
on
Reauthorization of the Clean Water Act

Mr. Chairman, Members of the Committee:

I am Harvey Davis, Executive Director of the Texas State Soil and Water Conservation Board. We are a state agency with responsibility to coordinate the programs of the 201 soil and water conservation districts in Texas. As such, we represent the needs and views of these districts which embrace virtually all of the agricultural land in Texas.

My purpose for testifying here today is to present the views of the State Soil and Water Conservation Board and Texas Soil and Water Conservation Districts concerning the reauthorization of the Clean Water Act, and more specifically, as they relate to programs for abating agricultural nonpoint source pollution.

The State Soil and Water Conservation Board is the Agency responsible for developing and implementing agricultural and silvicultural nonpoint source pollution control programs in Texas. We first became actively involved in this area in 1975 when the soil and water conservation district directors of Texas passed a resolution requesting us to seek an appropriate role for them in the 208 planning process. Several meetings with the Governor helped define the general approach that would be used, and resulted in our being delegated the responsibility to set forth agricultural and silvicultural nonpoint source abatement practices and procedures for implementation within the State. As a result of these responsibilities, the State Board invested considerable time and effort in the development of a statewide control stragegy for agricultural and silvicultural nonpoint source pollution. The control strategy has been approved by EPA and contains practices and procedures to abate agricultural nonpoint source pollution problems when such problems are identified. The procedures allow implementation only after pollution problems are properly identified and documented and then only on a voluntary basis with full consent of the landowner and adequate cost-share incentives.

Agriculture in this country presents a unique situation when considering methods of controlling pollution. Beside the fact that you are dealing with individual citizens and their private property, any additional burdens placed on already stressed agricultural producers would likely force many of them out of business.

For many years there have been controversies concerning the institution of land use regulation. Landowners in general are extremely sensitive to such proposals and in our state are violently opposed to any form of land use regulation. Language that was contained in the "Nonpoint Source Pollution Management Program" section of the proposed reauthorization bill would again open the door for attempts to institute land use regulation on private agricultural land. We do not believe that EPA will receive a significant level of cooperation or assistance from farmers and ranchers as long as the regulation of agricultural land is considered a viable alternative, and we strongly recommend that land use regulation not be a part of any legislation to reauthorize the Clean Water Act.

In Texas, the Soil and Water Conservation Board and Soil and Water Conservation Districts do not have regulatory authority over land use and do not desire to obtain such authority or be dictated to by agencies with such authority. We firmly believe that the only agricultural or silvicultural nonpoint source pollution control program that can be successful is a voluntary program. A regulatory program would not be feasible or desirable. Can you imagine the bureaucratic nightmare that would result from an attempt to regulate the 160 million acres of agricultural and forested land in Texas alone?

It would be our recommendation if a nonpoint source pollution management program is incorporated into the Clean Water Act that agricultural and silvicultural nonpoint sources be addressed separate and apart from other sources. Agricultural and silvicultural problems should be addressed under a grant program to state soil conservation agencies or other agencies if the Governor so designates. These grant funds should be utilized for the purpose of establishing a voluntary cost-share program with owners and operators having control of agricultural land for the purpose of installing and maintaining best management practices. Practices to be cost-shared should be approved by a soil and water conservation district, where one exists, and should be consistent with the State's control strategy for agricultural and silvicultural nonpoint source pollution. Where a soil and water conservation district does not exist, the designated state agency should perform its functions.

The designated state agency should have the authority to allocate grant funds to soil and water conservation districts for the purpose of sharing the cost of and/or providing technical assistance for carrying out the best management practices. The designated state agency should also have authority to request assistance from the USDA, Soil Conservation Service and others as may be appropriate to provide technical assistance to owners and operators of agricultural land for the purpose of installing such practices. Funding should be adequate to provide for administration of the program as well as for providing cost-share incentives.

Section 101(b) of the Clean Water Act establishes the policy of Congress to recognize, preserve and protect the primary responsibilities and rights of States to prevent, reduce and eliminate pollution, and to plan the development and use of land and water resources. Like point source programs, if agricultural nonpoint source pollution management programs are needed, they should be administered by the States with proper support and cooperation from the federal government. They should not be dictated solelv by a federal agency. State Soil Conservation Agencies and Soil and Water Conservation Districts have been working with farmers and ranchers for more than 40 years. They are more qualified to administer agricultural nonpoint source pollution programs than any other entity in existence.

Testimony of

Neil Sampson
Executive Vice President, NACD

before the

Committee on Environment and Public Works
United States Senate

on

Nonpoint Pollution Control Features
in the
Amendments to the Clean Water Act

July 19, 1983

Mr. Chairman... Members of the Committee...

I am Neil Sampson, Executive Vice President of the National Association of Conservation Districts, a private non-profit organization representing the nearly 3600 soil and water conservation districts of America. It is a privilege to come before you today to represent the views of those districts and the 17,000 men and women who guide their daily activities.

Conservation districts have been deeply involved in the water quality improvement efforts that have received so much attention in rural America in the last decade. We have learned much, accomplished a great deal, and realize we still have a long way to go. The legislation before you today is vitally important in determining whether those efforts continue, or are likely to be abandoned.

Attached to our testimony today are three appendices. Please direct your attention to the first one. It is the result of a telephone survey our staff made recently. It shows that in 44 states, there are ongoing efforts to implement nonpoint source pollution programs. In virtually every state, EPA has approved an agricultural element as part of a statewide plan, and the state soil conservation agency -- or the conservation districts -- have been named to help implement those efforts.

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The programs are of many different types. In 31 conservation districts in the Lake Erie Basin, for example, conservation tillage demonstration projects are being conducted with the assistance of small grants from the Environmental Protection Agency. The districts use the grants to purchase or lease the specialized planting equipment needed for no-till, ridge-till, or one of the other new conservation tillage methods. Farmers can then rent that equipment and test the method on a few acres.

The conservation district, with the assistance of the Soil Conservation Service, the Extension Service, private consultants and vendors, and other experts, provides on-site assistance so that the farmers learn all of the specialized management tricks that this new tillage method entails.

NACD, working through the Conservation Tillage Information Center that has been established as a joint venture between private industry, government, and our organization, helps the local district get the project started. We also provide standard record-keeping procedures for the districts, who in turn require that the farmers keep accurate cost and return information from both the conservation-tilled land and a conventionally-tilled piece nearby. NACD then takes the data from each farm and combines it into a total data set for all of the demonstration projects.

As a result of this type of effort, we are beginning to build a significant data base on the costs and effects of conservation tillage. Soil erosion and water runoff is being reduced, in many cases, to virtually negligible amounts. Farm profits are not being reduced, and in many cases, are going up. As a result of these efforts, and many others like them, conservation tillage is rapidly becoming a common practice on America's farmland.

Districts have also used state water quality grants to implement nonpoint source programs at the local level. Some of these offer cost-sharing to farmers, to help offset the cost of applying pollution control practices that are too expensive otherwise. Some of the programs simply feature a great deal of information and education work, relying on peer pressure among the farmers themselves to foster the installation of practices to prevent runoff and water pollution.

About the only features of these programs which can be generally identified are that they are, without exception, locally conceived and managed in terms of their specific approaches. They are the result of initiative on the part of the farm community itself, working through locally-constituted and locally-directed organizations and institutions.

We are convinced that new encouragement from the federal government would greatly accelerate these kinds of efforts.

This activity is occuring today in spite of an almost-total lack of attention and support from EPA and its programs outside of the Great Lakes Area. Federal funding for the 208 planning process has ceased. Implementation of the agricultural portion of 208 plans, as envisioned under Section 208 (j) of the Act, has received no new funding for the past two years. EPA's water quality planning and implementation staff, both at the national and regional levels, has been severely cut back.

Despite this, state agencies and conservation districts have continued to press forward with modest nonpoint programs. Why?

We think the answer is clear. On many water bodies, nonpoint source pollution is a recognized problem that continues today. In some cases, the causes are not fully known, but in many they are. In some situations, the solutions are not fully known, but again, in many they are. Where people understand that their water is polluted, where they understand what causes that pollution, and where they know what to do to prevent that damage, they are ready to move forward and take constructive action.

But such action takes resources, and commitment, and support. It takes private initiative on the land, to establish conservation practices that help prevent pollution. But it also takes public action -- to provide technical assistance, information and support to those land users -- to furnish economic incentives where the costs of pollution control cannot be recovered in the private economy -- and to give the kind of moral, legal and political support that local officials need to enact and enforce effective programs.

We have worked many years to develop an institutional framework through the 208 planning process that is capable of taking constructive, effective action to help the farmers, foresters, ranchers, and other land users of America prevent nonpoint source pollution. As you can see from our survey, that framework is in place. But it can't last long if Congress does not give it some support from the federal level. If we do not develop a nonpoint source implementation program in 1983, we would hold little hope of being able to retain this state of readiness until 1987.

Thus, it is vital that the federal government take a leadership role once more. That role does not need to involve massive amounts of money or heavy-handed federal intervention. What is needed is encouragement, technical information, assistance and support for state and local efforts -- some modest cost-sharing so that fiscally-strapped state and local governments can afford to move ahead -- and the cooperation and support of all federal programs that impact upon water quality so that good state and local efforts are not cancelled out by the effects of unrelated or insensitive federal projects or programs.

We feel that the bill before the Committee offers a good starting place for developing that role. There are some issues to be ironed out, and some changes that we would suggest, but we commend the Committee for providing a constructive starting point for developing this legislation.

Recently, several organizations, including our own, have worked together to develop a set of basic principles that might be applied to any new attempt to design a nonpoint source program. We have circulated them to the Committee previously, and they are attached as the second appendix to our testimony for the purpose of entering them in the record of this hearing.

Based on those principles, we have also attached suggested changes to the legislative language developed by the Subcommittee. We recommend these changes for your consideration, and would like to take a few moments to explain some of the reasoning behind them.

First, while our draft does not show it, we feel that the legislative language creating this new implementation program should be incorporated somewhere in the bill other than in Section 208. Section 303 is a good spot to put this section, in our opinion. That would give a clear signal that this is a new program to implement 208 plans, not a program to simply continue that planning process.

At the same time, we would like for the legislation to make clear that this effort should use the 208 planning process, and what has been gained from it, as the basis for moving forward. We must not be constrained, or limited, in those areas where 208 plans are inadequate, but in many areas, the 208 process provides a solid basis for implementation progress. Our suggested changes in subsections (b)(1)(C) and (b)(2) are intended to convey this principle.

We feel the states need to establish realistic goals for what they hope to accomplish using federal funds to cost-share their implementation programs, and demonstrate that they are making progress on achieving those goals in order to continue to receive federal program support. We have some doubts about the ability of a state to guarantee at the outset what it can achieve in four years, and fear that such a fixed time limit could have the effect of discouraging states from identifying and tackling important, but difficult, problem areas. Our changes in (b)(1)(C)(ii) and (iii) and (c)(3) are meant to incorporate this principle.

States undertaking a nonpoint source implementation program should ask that federal programs not operate at cross-purposes with the state's objectives. Federal policy on that matter is contained in Executive Order 12372, dated July 14, 1982. We have included language in subsection (b)(1)(D) that would encourage the state to identify specific federal programs that would be most likely to cause adverse effects, in an attempt to get the federal agency's concurrence for consistency at the outset. This is an attempt to maximize voluntary consistency, but it will also serve notice from the State to the particular federal agency that projects or programs of that agency will be carefully monitored and held accountable to the consistency required by E.O. 12372.

In addition, the state could ask that certain federal programs be accelerated in the high priority nonpoint source areas to assist the state program in reaching its goals.

We feel this is a practical alternative to the existing language which would require a federal agency not to support any activity that does not conform to a plan to reduce nonpoint pollution loadings. Our experience with such plans -- and the difficulty with establishment of cause-effect relationships -- leads us to believe that this would be exceptionally difficult, if not impossible, to carry out.

We feel that a program of the type and magnitude envisioned in this Bill should be directed at those high-priority areas within a state where water quality problems have been clearly linked to nonpoint source pollution, where feasible solutions have been identified, and where institutional readiness to address those problems has been developed. If this is the case, such a program would be an important beginning in the long-range task of improving and protecting the Nation's waters. What it could not do, however, is solve all a state's water quality problems in short order.

Thus, we feel it inappropriate to hold states responsible, in this program, for meeting downstream water quality standards. That issue -- a very difficult one -- is now addressed by other portions of the Clean Water Act. To the extent that the issue continues to be a problem in some water systems, we simply do not feel that this program will be adequate or appropriate to provide the solution.

We conclude our suggested changes in the Subcommittee language with some additional requirements for EPA to become more active in the national technical and information transfer process. We feel this will be needed if we are to gain maximum effect from the public expenditures envisioned. It should also improve the information available to the Congress and the public as we continue to address policy and program questions involved in the prevention of nonpoint source pollution.

We appreciate this opportunity to bring our views before the Committee, and pledge our assistance as you continue this important and timely legislative effort.

NACD

APPENDIX

A telephone survey was conducted by NACD the week of July 4, 1983 to gather information on 208 activities. Responses to questions and a brief summary of the activities currently in progress are highlighted in the succeeding pages.

These are examples of various projects being undertaken in the states, but may not be all inclusive.

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208 SURVEY

The Following Questions Were Asked

1) Did the state ever get a 208 statewide plan that includes an agricultural element approved by EPA?

2) Is the state soil conservation agency and/or districts designated as the implementing agency for the agricultural nonpoint phase?

3) Are you doing anything right now?

Summary

Question #1
44 states responded in the affirmative
6 states responded in the negative -- California, Colorado, Delaware, Indiana, Massachusetts, New York

Question #2
47 states indicated that the state soil conservation agency and/or districts is the designated implementing agency
3 states indicated that other agencies are the designated agency -- Maine, New Hampshire, Pennsylvania

Question #3
44 states responded in the affirmative
6 states responded in the negative -- North Carolina, Texas, Iowa, Nebraska, Maine, Massachusetts

STATE	QUESTION #1	QUESTION #2
ALABAMA	yes	S&W Cons. Committee
ALASKA	yes	Soil Cons. Subdistricts
ARIZONA	yes	State Land Dept., Div. of Nat. Res. Cons.
ARKANSAS	yes	S&W Cons. Commission
CALIFORNIA	no	some RCDs designated
COLORADO	no	Soil Conservation Board
CONNECTICUT	yes	Council on S&W Cons.
DELAWARE	no	Conservation Districts
FLORIDA	yes	Bureau of S&W Cons.
GEORGIA	yes	S&W Cons. Committee
HAWAII	yes	Cons. Dists.
IDAHO	yes	Soil Cons. Commission and Dists.
ILLINOIS	yes	Div. of Natural Resources and Dists.
INDIANA	no	S&W Cons. Committee and Dists.
IOWA	yes	Soil Cons. Committee and Dists.
KANSAS	yes	Cons. Commission and Dists.
KENTUCKY	yes	S&W Cons. Commission
LOUISIANA	yes	S&W Cons. Committee
MAINE	yes	State Planning Agency
MARYLAND	yes	Soil Cons. Committee
MASSACHUSETTS	no	None
MICHIGAN	yes	Soil Cons. Committee and Dists.
MINNESOTA	yes	S&W Cons. Board and Dists.
MISSISSIPPI	yes	S&W Cons. Commission
MISSOURI	yes	S&W Districts Commission and Dists.
MONTANA	yes	Dept. of Natural Res. & Cons. and Dists.
NEBRASKA	yes	Cons. Dists.
NEVADA	yes	State Cons. Commission and Dists.
NEW HAMPSHIRE	yes	Water Supply & Poll. Control Comm.
NEW JERSEY	yes	Soil Cons. Committee
NEW MEXICO	yes	S&W Cons. Commission and Dists.
NEW YORK	no	S&W Cons. Committee and Dists.
NORTH CAROLINA	yes	S&W Cons. Commission
NORTH DAKOTA	yes	Soil Cons. Committee and Dists.
OHIO	yes	S&W Cons. Commission and Dists.
OKLAHOMA	yes	State Cons. Commission
OREGON	yes	Dept. of Agric. through Div. of Cons. and Cons. Dists.
PENNSYLVANIA	yes	Water Quality Comm.
RHODE ISLAND	yes	Cons. Committee
SOUTH CAROLINA	yes	Land Res. Cons. Commission
SOUTH DAKOTA	yes	Cons. Dists.
TENNESSEE	yes	Cons. Committee
TEXAS	yes	S&W Cons. Board
UTAH	yes	Cons. Dists.
VERMONT	yes	Natural Resources Cons. Council with provision to farm out work to other agencies
VIRGINIA	yes	S&W Cons. Commission
WASHINGTON	yes	Cons. Commission and Dists.
WEST VIRGINIA	yes	Soil Cons. Committee
WISCONSIN	yes	Land Cons. Board and Dists.
WYOMING	yes	Cons. Commission

Summary of 208 Activities

SOUTHERN REGION

NOTE: In some cases the plan states that the Dept. of Agric. is lead agency but have contracted with state committee to be lead agency.

Alabama
Preparation of an '83 supplement to their statewide plan (agricultural portion) which will bring them up to date.

Arkansas
Training program for district directors, employees and working with cooperators.

Florida
Have had a $60,000 grant which they have been using and working out Memorandum of Understanding between Bureau, Dept. of Envt. Regulation, SCS and districts -- all but 1 district has executed M of U.

Georgia
Have a full time 208 man. Had some money that came through DNR and in 82 and 83 put on 25 demonstrations of BMPs which have been seen by 20,000 people. Also, water quality displays that 1/2 million people have seen.

Kentucky
S&W Cons. Comm. lead agency not only for agricultural but also for construction. Have prepared and distributed a BMP manual for construction and are currently preparing a BMP manual for agriculture. Documents that there is a noticeable increase in BMP particularly in construction.

Louisiana
Have a couple of projects on lakes -- trying to pin down what is polluting the lakes. Not much else.

Mississippi
Are carrying out an extensive educational program which includes such things as distributing water quality brochures and showing slide shows.

North Carolina
Not much going on.

Oklahoma
Have identified 10 watersheds with nonpoint problems which are being surveyed to pin down exactly what problems exist. Will then develop management plans to solve problem and look for someone to help them out financially. Sediment has been the only thing identified as polluting -- not herbicides or insecticides.

South Carolina
Not much going on other than conservation tillage as a BMP.

Tennessee
Have been diligently updating their agricultural portion of statewide plan. Conducting no till clinics and have been talking BMPs at district meetings -- slide shows.

Texas

Not much going on.

Virginia

Have documented that there are 750,000 acres increase in cropland that is being adequately tried to cut down on sediment. Instigated a filter strip program. Districts in Piedmont are increasingly active in water quality. Districts have purchased and made available 25 no-till seeders as a BMP.

PACIFIC REGION

Alaska

State Dept. of Envt. Conservation has allocated funds to soil conservation subdistricts for their review of conservation plans developed in the districts -- checking to see whether BMPs are included. They pay the district $40 for each plan they review.

California

Some RCDs were designated but basically develop theirs on selected basis. Work being done in selected areas through specifically identified RCDs.

Hawaii

Plan is being implemented and Hawaii Assn. chairs a nonpoint committee monitoring 208 type programs. Hawaii Assn. president serves as chairman with various representatives from state agencies.

Idaho

Commission is completing their planning phase. Eight projects identified and each has an implementation project underway. One being funded under RCWP and 7 under the state water quality cost share program. Need planning funds to proceed further.

Nevada

Have salinity nonpoint program down by Las Vegas.

Oregon

Have an RC&D project on dairy waste. Certain areas have irrigation water quality program and 7 state grants to districts for projects relating to water quality.

Washington

Three projects -- irrigated, dryland and dairy waste. Reporting all activities regarding water quality. Four projects underway being financed with public bonds -- 2 dairy waste, 1 dryland, 1 irrigated.

NORTH CENTRAL REGION

Indiana

Note: Nothing but using Section 108 money for demonstration projects.

Illinois

Have a state soil erosion and nonpoint committee that is developing a long range plan, priority watershed committee, have a state cost share program but no money -- using whatever federal funds they have.

Ohio
Has similar program to Illinois. Note: Using Section 108 money for demonstration projects -- 44-48 counties involved.

Minnesota
Good state plan -- problem is that it is in their state water quality agency. No funds but good plan.

Michigan
Nothing. Note: Using Section 108 money for demonstration projects.

Wisconsin
Gary Williams, EPA, says Wisconsin has best program. Has $1 million plus in nonpoint program. Also have priority watershed program which involves land conservation committees. Going strong!

Missouri
Instructed by water quality agency to secure funding for erosion control.

Iowa
Do not have any particular program set up for nonpoint.

WESTERN REGION

Arizona
Working on groundwater quality. It was ignored in other plans. Anticipated permit program relative to groundwater pollution. Surface water is not serious problem -- reuse their water.

Colorado
As direct result of 208 program, had planning regions approved by EPA -- had a watershed project, project on irrigated land to cut water loss and stop salinity. Basically a concrete ditch lining project.

Kansas
In process of reviewing the agriculture runoff portion of the 208 plan after five years of operation. Being assisted by EPA employee on loan for 90 days. Will report where they are in their plan: accomplishments, where they need to go and what needs to be done. This report will be given to the legislature in 1984.

Montana
Funds are limited now. Have several streambank stabilization projects in operation. Crop production involving 15 districts, water quality and sediment control involving 2 districts. Every district has signed an agreement with water quality department, EPA and DNR.

Nebraska
Nothing doing.

New Mexico
Most contracts have been completed. One contract is still in effect involving toxic waste studies. Have booklet on sedimentation and erosion on forest land. Univ. of New Mexico was involved in element on BMPs on rangeland. Tracking system for implementation of conservation practices.

North Dakota
Have 3 targeted watershed areas. State Health Dept. has an agreement with CDs to help finance 3/4 of the cost of manpower to supply information of the BMPs to the area (involves 4 districts). State Health Dept. is designated water quality agency.

South Dakota
Have 208 money available. Have 7 CDs involved. Money is used to hire a coordinator who contacts people and number 1 priority is lake restoration techniques; also contact people about selling story of soil conservation, conservation tillage, any other information about conservation programs. ASCS also gives support. Are going to give statements and issue letters for July 19 hearings. Have learned that ASWIPCA leaning heavily towards issue. NALMS will also give testimony.

Utah
208 plan is now called 205(j). Money has been distributed in grants to 6 agencies including Dept. of Agric. to implement and carry out their plan. All area of plans are the nonpoint implementation and all plans are oriented towards agriculture. Dept. of Agric. is very involved in nonpoint issue.

Wyoming
Priority is stream water quality assessment with CDs. Not called 208 -- water quality management. Work on a 15 mile creek which is a tributory to Big Horn River. Another project -- Final Water Quality Assessment on Salt River -- involves Star Valley CD, SCS, Wyoming Fish and Game Dept. and ASCS. Another one -- Bitter Creek water quality assessment involving 2 counties -- and another at Big Sandy River.

NORTHEAST REGION

Connecticut
Agric. enforcement activities.
Requirement for permits.
Groundwater management program.
Erosion and sediment control program.

Delaware
No, but working on it. New Castle Dist. has an approved plan but not a statewide plan. Have hired a specialist under 208 who works with DNR and Extension Service.

Maine
Nothing going on.

Maryland
Agric. plan has critical areas designated: RCWP project, clean lakes program. Each county has their own critical area where they target their emphasis. ACP special project and reactivating 208 technical team to tackle Chesapeake Bay.

Massachusetts
Nothing going on.

New Hampshire

Voluntary compliance with BMPs for normal agric. activities. Education and conservation advice to farmers. Maintain water pollution control.

New Jersey

Ongoing ACP program, 2 PL 566 land treatment projects, increased emphasis on large soil loss areas.

New York

Whole thing was not approved but agric. portions were approved. Looking to find out reason for non-approval and get it going.

Pennsylvania

As of September 1979. Assessment of nonpoint agric. pollution involved with erosion and sediment control evaluation program. Develop plans to carry out first agric. assessment on nonpoint.

Rhode Island

No new projects other than the existing programs -- watersheds and CO-1.

Vermont

PL 566 project underway, RCWP and RC&D.

West Virginia

Not one big statewide project. Broken down into 4 areas: agric., forestry, conservation and mining. State committee in charge of agric. portion. Emphasis by CDs has been to increase the BMPs by 10% each year for the last 3-4 years and are still working on this. Also have watershed projects.

July 15, 1983

Principles on the Control of Nonpoint Source Pollution

1. While Encouraging Progress Has Been Made to Date in Controlling Nonpoint Source Pollution, Additional Effort Is Needed to Work Toward Achieving the Goals of the Act

The Clean Water Act's Section 208 planning process was instrumental in fostering the development of state programs to address nonpoint source pollution. As a result of this effort, much attention has been focused, since passage of the Act in 1972, on devising programs and practices to control nonpoint sources. Nevertheless, on many water bodies nonpoint source pollution remains a significant problem. Consequently, additional federal and state emphasis should be placed on the control of nonpoint source pollution.

2. Completed and Approved Section 208 Plans Should Serve as the Springboard for Additional Efforts to Control Nonpoint Source Pollution

State plans developed through the Section 208 process in most cases represent the most comprehensive available assessment of: (1) nonpoint source problems; (2) needed controls; and (3) viable institutional arrangements for implementing these controls. While the Section 208 data base will need to be updated, augmented and, in certain areas, modified, any new initiatives designed to address nonpoint sources should build upon what we have already learned through the Section 208 planning process.

3. Primary Responsibility for Developing and Implementing Nonpoint Source Controls Should Continue to Reside at the State and Local Levels

One important finding of the Section 208 effort is that the nature and variability of nonpoint source problems and needed control measures, dictate that control programs must be developed and implemented at the state and local level. Resource, personnel, and technical limitations make direct federal implementation of nonpoint source control programs infeasible. Consequently, even in cases where states are, for some reason, unwilling or unable to act, direct federal imposition of specific controls is not viable.

4. States Should Be Afforded Broad Flexibility in Developing the Types of Nonpoint Source Control Programs that Address the Particular Problems in Each State

Because of the variability of nonpoint source problems from state to state (and within states), EPA has adopted a policy of providing the states with considerable flexibility in controlling nonpoint source pollution. Important components of this policy include the flexibility to develop: (1) different types of control programs, both regulatory and nonregulatory; (2) schedules for achieving implementation milestones that reflect the necessary differences in control programs; and (3) economically and technically feasible best management practices that will be applied in a site-specific fashion. This policy is an essential element of any new initiatives to address nonpoint sources. States should not be bound to: (1) a particular type of program; (2) a uniform, national compliance schedule that is not keyed to the state program; or (3) a specific set of practices that are not site-specific in application.

5. The Federal Government Does Have an Appropriate Role in Fostering the Development of Nonpoint Source Control Programs

While the implementation of nonpoint source control programs should remain a state and local responsibility, there is an appropriate role for the federal government in this process. EPA should: (1) continue to review and approve state nonpoint source control programs; (2) provide financial support to states to assist in the implementation of nonpoint source controls on those water bodies where nonpoint source pollution is causing water quality problems; (3) serve as a "clearing house" for the transfer of information on successful implementation programs at the state level; and (4) assess the progress being made and keep Congress abreast of needed changes to the federal strategy for dealing with nonpoint sources, including recommendation of appropriate sanctions or remedies where nonpoint source controls are not being implemented. The U.S. Department of Agriculture should also provide technical assistance, where appropriate, to assist state implementation of nonpoint source control programs. All federal agencies should work with states to make their programs consistent with state nonpoint source control efforts.

6. Federal Financial Support Is Necessary to Encourage the Implementation of Nonpoint Source Controls

Given the current limitations on resources at the state and local levels, federal financial assistance will be essential to: (1) help states refine implementation plans, where necessary; (2) implement education, training, technology-transfer, and other programs designed to get best management practices implemented on the ground; and (3) in some cases, cost-share the implementation of best management practices.

7. Positive Initiatives, Rather than Financial Sanctions Against Nonpoint Sources, Will Have the Greatest Impact on Improving Water Quality

The element of compulsion injected by proposals for financial sanctions conflicts with current EPA policy under Section 208 to foster cooperative programs to implement nonpoint source controls. Experience with the Section 208 program suggests that an approach which emphasizes education, training, and incentives -- both financial and institutional -- offers the best chance of success, especially in dealing with rural nonpoint source problems. A controversial sanctions program may make states reluctant to honestly identify problems and develop control programs. Any additional initiatives should thus, emphasize incentives rather than sanctions.

8. New Efforts to Deal with Nonpoint Source Pollution Should Concentrate First on Implementation to Address Known Problems

There is still much to learn about the relationship between the implementation of best management practices and improvements in measures of ambient water quality. Data gaps also exist in determining natural background levels of some nonpoint source pollutants, and quantifying the impact of long-range transport of pollutants as part of the bedload that already exists in most stream systems. New nonpoint source initiatives should be designed to assist states in implementing best management practices to deal with known nonpoint problems on priority water bodies. The positive thrust of initial implementation efforts should not be confounded by attempting to address issues where insufficient decision-making data exist, such as: (1) nonpoint source compliance with water quality standards; and (2) resolving interstate conflicts over long-range transport of nonpoint source pollutants.

NONPOINT SOURCE POLLUTION MANAGEMENT PROGRAM

SEC. _____. (a) The Administrator shall, at the request of the Governor of a State, make a grant for the purpose of ~~implementing~~ carrying out an ~~a management~~ implementation program to control nonpoint sources of pollution to improve water quality in those States for which the Administrator, after notice and opportunity for public comment and after consultation with appropriate Federal and State agencies and other persons, has approved a program under subsection (b) of this section. Payments for such purpose may be made to the States as hereinafter provided in subsections (~~d~~c) and (~~e~~d), subject to such terms and conditions as the Administrator considers appropriate.

(b) (1) ~~A~~ Each State, by itself or in combination ~~of~~ with adjacent States shall ~~may elect to avail itself of the benefits of this section by~~ submit~~ting~~ to the Administrator, within 9 months after the date of enactment of the Clean Water Act Amendments of 1983, a nonpoint source ~~management~~ implementation program which shall, on the basis of available information, including but not limited to information available under sections 208, 303(e), 304(f), or 305(b) of this Act:

"(A) identify those waters within its boundaries which without additional action to control nonpoint sources of pollution cannot reasonably be expected to attain or maintain (i) applicable water quality standards or (ii) that water quality which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced indigenous population of shellfish, fish, wildlife and plants, and allow recreational activities in and on the water;

"(B) designate categories or subcategories of nonpoint sources of pollutants that contribute significant pollutant loadings to the waters identified under subsection (b) (1) (A) of this section;

~~(C) identify management practices and measures which can be undertaken (including land use requirements) to control each category or subcategory of such nonpoint sources and to reduce to the greatest extent practicable pollutant loadings resulting from such nonpoint sources, and~~

~~"(D)"~~"(C) using information collected pursuant to Section 208(b)(2) of this Act, and other available information, include a proposed implementation plan developed in cooperation with local agencies or organizations as appropriate, which shall include:

(i) a list of what stream segments from among those identified in subsection (b)(1)(A) and, for each such segment, which categories and subcategories of nonpoint sources of pollutants the implementation plan will apply to;~~(i) a description or proposed management practices and measures which represent at least the average of what similar sources accomplish in reducing pollutant loadings, and which the State or combination of States commits to implement as expeditiously as possible but in no case later than forty-eight months after enactment of the Clean Water Act Amendments of 1983 to reduce pollutant loadings resulting from nonpoint sources;~~

"(ii)~~identify~~ a list of best management practices and measures which will be undertaken~~(including land use requirements)~~to control each category or subcategory of such nonpoint sources detailed in subsection (b)(1)(C)(i) in order to reduce pollutant loadings resulting from such nonpoint sources;

"(iii) a schedule indicating when each category and subcategory of nonpoint sources of pollutants will undertake the practices and measures indentified in subsection (b)(1)(C)(ii);

~~"(ii)~~"(iv) the estimated cost of the management practices and measures proposed to be implemented during the next fiscal year;

~~(iii)~~(v) an identification of methods (including, as appropriate, programs for enforcement, technical assistance, education, training and cost-sharing) for implementing the proposed management practices and measures; and

~~"(iv)~~"(vi) a statement from the attorney general of such State or States (or the attorney for those State water pollution control agencies which have independent legal counsel) that the laws of such State or States, as the case may be, provide adequate authority to carry out the described program , or what additional authorities would be necessary to do so, and,

~~"(E) in identifying management practices and measures, and in implementing the implementation plan described in subparagraph (B) of this paragraph, a State may make use of local agencies or organizations.~~

"(D) include requests to any department, agency, or instrumentality of the Federal Government to: (i) cease engaging in, supporting, or providing financial assistance for specific activities or programs within the State if such activities would be inconsistent with or interfere with the implementation of the States plan prepared under subsection (b)(1)(C), and (ii) administer relevant programs or activities, as specified by the state, in a manner which is consistent with and helps the state implement the plan developed in accordance with subsection (b)(1)(C).

(2) To the extent feasible, programs submitted under this section shall build upon plans developed by the state and approved by the Administrator in accordance with the provisions of Section 208(b) of this Act:

"(~~2~~3) Each program submitted in accordance with paragraph (1) of this subsection shall be deemed to have been approved by the Administrator unless, within 6 months after the date of receipt of such program, he determines after notice and opportunity for public comment and consultation with appropriate Federal and State agencies and other interested persons that adequate authority does not exist to carry out the described program or that the program is otherwise insufficient to control nonpoint sources of pollution and to reduce pollutant loadings resulting from such nonpoint sources. If the Administrator so determines, he shall notify the State of any revisions or modifications necessary to obtain approval. The State shall thereupon have an additional 3 months to submit its revised implementation plan.

~~(c) For each State that fails to submit a nonpoint source management program in accordance with subsection (b)(1) of this section, the Administrator shall, within 18 months after the date~~

~~of enactment of the Clean Water Act Amendments of 1983, after consultation with appropriate Federal and State agencies and other interested persons, establish such management program and shall qualify, for the purposes of allocation and distribution of funds under this section, as a substitute for each such State;~~

"(~~d~~c)(1) Upon approval of a nonpoint source management program submitted in accordance with subsection (b)(1) of this section, the Administrator shall finance the costs of implementing such program; except that Federal grants under this section shall not exceed 50 per centum of the costs of implementing the program in any fiscal year and shall be made on condition that non-Federal sources provide the remainder of the costs of implementing the program during such fiscal year.

"(2) Administrative costs in the form of salaries, overhead or indirect costs for services provided and charged against programs or projects supported by funds made available under this section shall not exceed in any one fiscal year 10 per centum of the annual Federal grant made to a State under this section, except that costs associated with education, training or technology transfer programs shall not be subject to this limitation.

"(3) No grant shall be made to a State under this section unless the Administrator determines, on the basis of information provided by the State and from other relevant sources, that the State is implementing the program satisfactorily in terms of the requirements and objectives of this section.

"(~~e~~d) (1) For the purpose of this section there is authorized to be appropriated, to remain available until expended, $150,000,000 per fiscal year for the fiscal years ending September 30, 1983, September 30, 1984, September 30, 1985, September 30, 1986, and September 30, 1987.

"(2) Sums available for the purpose of this section shall be apportioned among the States by the Administrator, whose determination shall be final, on the basis of the ratio which the total of shoreline miles of streams, reservoirs, lakes, bays and estuaries identified by each State under subsection (b)(1)(A) of this section bears to the total of shoreline miles so identified by the several States and combination of States. Such apportionments shall be adjusted equitably so that no less than one-half of 1 per centum of the total amount apportioned shall be allocated to each State or combination of States.

~~(f) Where the waters of more than one State are affected by nonpoint source pollution, the downstream State may petition the Administrator to require any upstream State to develop an implementation plan under subsection (b)(1) which is compatible with the implementation plan adopted by the downstream State.~~

~~(g) No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for any activity which does not conform to a plan to reduce pollutant loadings resulting from nonpoint sources after such plan has been developed or adopted by the State in which such activity is proposed.~~

~~"(h)~~"(e) The ~~time for compliance under subsection (b)(1)(D)(i)~~implementation plan approved pursuant to subsection (b)(2) may be subsequently modified by the State, with the

Administrator's approval,~~with respect to a particular activity or sources,~~ if it finds, after notice and opportunity for public comment and after consultation with appropriate Federal and State agencies and other interested persons, that the ~~activity~~modification: (1) will ~~represent~~result in the maximum reduction of pollutant loadings within the economic capability of the ~~persons or entity engaging in or proposing to engage in the activity,~~categories, subcategories, or sources to which the modification would apply, and (2) will result in reasonable further progress toward the attainment of the objective of this Act."

"(f) the Administrator shall:

(1) collect and make available, through publications and other appropriate means, information pertaining to management practices and measures including but not limited to (i) information concerning the costs and relative efficiencies of best management practices and best available techniques for reducing nonpoint source pollution; and (ii) available data concerning the relationship between water quality and implementation of various management practices and measures to control nonpoint sources of pollution;" and

(2) submit to the Congress within 48 months of enactment of these amendments, after consultation with appropriate Federal and State agencies and other interested persons, a report which:

(A) identifies the progress made in reducing pollutant loads and improving water quality in the waters of the United States; and

(B) indicates what further actions need to be taken to attain and maintain in those waters (i) applicable water quality standards or (ii) that water quality which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish, wildlife, and plants, and allow recreational activities in and on the water.

STATEMENT OF
JOE G. MOORE, JR.
PROFESSOR, GRADUATE PROGRAM IN ENVIRONMENTAL SCIENCES
THE UNIVERSITY OF TEXAS AT DALLAS
Before The
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
July 19, 1983

Mr. Chairman, I am Joe G. Moore, Jr., a Professor in the Graduate Program in Environmental Sciences at the University of Texas at Dallas; I also serve part of each week as Assistant Administrator to the Mayor of the City of Detroit, Michigan, with responsibility to bring the Detroit Wastewater Treatment Plant into compliance with Federal, State and local laws, regulations and ordinances. That plant is served by a collection system that delivers both sanitary and storm flows, and the system periodically overflows to the Detroit and Rouge Rivers. I have been working in the field of water pollution control for nearly twenty years and have served as Chairman of the Texas Pollution Control Agency, Commissioner of the national program when it was located in the Department of the Interior and Program Director of the National Commission on Water Quality on which several distinguished Members and former Members of your Committee served.

This Commission's staff addressed the issue of non-point source pollution in its 1976 Report to the Members, and I have provided extracts from that document for your staff. The Report stated in part:

> "D. Agricultural Non-point Sources
>
> "Certain non-point sources may contribute large quantities of pollutants to the nation's waters on a temporary or intermittent basis. Runoff from agricultural cropland may deliver sediment, fertilizer, pesticides and organic materials to surface water. Non-irrigated cropland in the United States was estimated to total about 380 million acres in 1967, roughly 90 percent of the total cropland. The only measures evaluated for reducing pollutant contributions such as sediment, fertilizer, pesticides and organic material to streams were those recommended by the Soil Conservation Service in its 1967 Conservation Needs Inventory. This Inventory indicates that about 158 million acres -- 40 percent -- of non-irrigated cropland needs better soil conservation practices applied. Implementation of these practices is estimated to require a capital investment of $2.6 billion. No mechanism now exists that could dictate implementation of all the land needing these measures, even if all investment costs were borne by the Government." (p. I-52)

> "Irrigated agriculture impacts water quality and quantity in at least six different ways: 1) it concentrates salts dissolved in water, primarily by the evapotranspiration of water; 2) it may weather naturally occurring minerals from irrigated soils; 3) it may add sediment to, or remove it from, receiving water; 4) it may add nitrogen and phosphorus to a receiving water; 5) it may add pesticides to a receiving water; and 6) it will alter the quantity and temporal distribution of downstream flows if it is derived from, or returned to, surface waters." (p.II-169)

Today I wish to offer the following items for your consideration:

1. Any program for non-point source control must consider irrigation return flows which were characterized as point sources from 1972 until 1977. In the Clean Water Act of 1977, the definition of point sources was amended to specifically exclude irrigation return flows (Sec. 502 (14)), and planning for their control was required under Section 208 (b)(2)(F).

2. Sediment, which represents the single largest volume of pollution from agricultural and other land use activities, must be more adequately controlled not only for its own polluting effect but also because it is the carrier of other pollutants. Thus, wherever sediment collects in our streams and lakes, there are concentrations of agricultural pollutants - pesticides, herbicides and fertilizers - as well as pollutants from industrial and municipal treatment plants that here become attached to the sediments.

3. Urban runoff continues to add pollutants that have been deposited on streets and city properties from the air or by traffic and man's activities.

4. There has been enough planning; technologies for non-point source control are known, have been demonstrated and are being applied in some places.

5. The water quality improvements being achieved through more adequate industrial, agricultural and municipal point source control through application of BPT, BAT and conventional treatment can be obscured or overwhelmed by pollutants from rural and urban non-point sources of pollution in many parts of the country. While the problem is distributed throughout the nation, solutions are often site-specific, regional or statewide.

6. Thus, the States are in the best position to formulate control plans tailor made to their particular conditions and needs. At the same time, there are Federal goals, objectives and requirements that have been embedded in Federal law for many years now. Also, because of the Federal effort committed to control of industrial point sources and the investment of Federal dollars in construction of publicly owned treatment works, there is a legitimate Federal interest that benefits realized from these investments not be negated through non-point source pollutants. A reasonable balance, with substantial

State response and minimal Federal incentives and effective Federal oversight should be the objective. If any state cannot, or will not, provide adequate and timely non-point source control, then protection of the Federal commitment justifies development and implementation of control plans at the Federal level by the Environmental Protection Agency; the program should be mandatory and not voluntary just as for point sources. Commitment of Federal assistance to any State after the initial year should be conditioned upon adequate progress toward the planned implementation.

7. Experience in the national water pollution control program demonstrates that initial deadlines for compliance and implementation are usually optimistic; there is little doubt, however, that the progress toward clean water thus far achieved would NOT have been realized without statutory deadlines. The program will move forward most effectively if there is a deadline.

8. If the Federal government is to accelerate and encourage States to comply with non-point source controls, then it should restrain any of its activities that might conflict with approved implementation plans. Thus, the Federal government should honor the State's chosen course, if it is consistent with Federal guidelines, by restricting the use of Federal funds for any project or activity that might conflict with the approved control strategy. This concept is consistent with other Federal statutes in the environmental field such as the National Environmental Policy Act and the Safe Drinking Water Act.

Thank you Mr. Chairman.

STATEMENT OF ROBERT H. HARRIS

Good morning, Mr. Chairman and members of the Committee on Environment and Public Works. I appreciate this opportunity to appear before you today to discuss the serious problems posed by non-point sources of water pollution. In particular, I would like to discuss the non-point source contributions of toxic chemicals to our drinking water supplies and to the aquatic environment that provide for recreational and commercial fishing.

Point sources of water pollution are usually quite visible -- industrial outfalls and municipal sewage treatment plant effluents line the banks of most American rivers. But what are often not so obvious are the discharges of pollutants into lakes, streams, and rivers from the so-called "non-point" sources -- storm water runoff from roads, parking lots, filling stations, and agricultural land, to name a few. Although these non-point sources are well known to most who have been concerned with water pollution over the past several decades, what is becoming increasingly obvious is that the non-point sources not only contribute the conventional pollutants, such as nitrogen, phosphorus, and organic biodegradable material, but also contribute toxic chemicals which threaten our drinking water and our commercial and sports fishing industry. For example, recent evidence suggests that improperly constructed hazardous waste landfills, pits, ponds, and lagoons leak into groundwater which eventually discharges its contaminant loads into streams, rivers, and lakes.

Although there has been concern for the presence of toxic chemicals in surface water supplies for more than three decades, it was not until the disclosures of contaminated drinking water in New Orleans in 1974 that the nation began to seriously consider this problem. From studies in New Orleans and countless numbers of other drinking water supplies nationwide, we now know that potentially toxic heavy metals and organic chemicals threaten drinking water supplies nationwide. Both point and non-point sources of these toxic chemicals contribute significantly to the problem.

Since 1974, numerous epidemiologic studies have been conducted to investigate the relationships between contaminated drinking water supplies and cancer mortality rates. In general, these studies strongly suggest that drinking water obtained from polluted surface water supplies represents a greater risk of cancer than does drinking water obtained from unpolluted groundwater supplies. Although much of the focus of these epidemiological studies has been on the contribution of chlorination at the drinking water treatment plant, the point and non-point sources of toxic chemicals not only contribute significantly to the burden of toxic chemicals in drinking water but also exascerbate the chlorination problem. Let me explain.

When chlorine is added to drinking water as a necessary disinfectant to prevent water-borne diseases, the chlorine chemically combines with the natural and pollution sources of organic compounds to produce a number of known and suspected cancer-causing chemicals; namely, chloroform, three other trihalomethanes, and a wide variety of largely uncharacterized chlorinated hydrocarbons. In other words, the level of natural and pollution sources of organic matter in water is directly related to the amount of unwanted chlorination by-products in the treated water. Non-point sources of pollution contribute both directly and indirectly to this problem. For example, runoff from urban areas, highways, and parking lots contributes significantly to the organic content of surface water. In addition, the nutrients nitrogen and phosphorus from these same sources as well as from our agricultural areas stimulate the growth of algae and aquatic plants that directly contribute to the organic load in water supplies. A higher organic load will result in higher concentrations of unwanted chlorination by-products.

Although considerable studies since 1974 have documented the widespread contamination of our drinking water supplies from both point and non-point sources, the exposure to humans results not only from drinking the water but also from consuming fish and shellfish obtained from polluted sources. Based on some work which we did at the University of California a few years ago, we observed a striking increase in exposure to toxic chemicals when considering the ingestion of contaminated water, fish, and human breast milk. As shown in Table 1, when chlorinated compounds, such as pesticides, contaminate water, exposure to adults consuming fish obtained from that water is approximately 100-fold greater than consumption of the contaminated drinking water directly. And if one considers that breastfeeding infants occupy an even higher trophic level, their exposure to these same chemicals is five thousand times greater when consuming breast milk than when consuming the contaminated drinking water.

Although we often discuss the effects of toxic chemicals in terms of adult exposure, it is important to emphasize that contamination of breast milk in those areas of the country where fish are obtained from

Table 1 -- Estimated Daily Doses
of Selected Chlorinated Contaminants
(PCB's, DDT, etc.)
for Adults and Infants

Trophic Level	Water --->	Fish --->	Human Milk
Dose (μg/kg/day)	0.02	2	100
Ratio	1	100	5,000
	adult	adult	infant

Table 2. Average Daily Intake of Pesticides
by a Nursing Infant
(1976 EPA Data)

Pesticide	W.H.O. Acceptable Intake (μg/kg/day)	Actual Intake (μg/kg/day)	
		Average	Maximum
DDE	5	13.8	38
Dieldrin	0.1	0.92	73
Heptachlor Epoxide	0.5	0.52	12

polluted sources are consumed in high quantities, the exposures have reached unacceptable levels. As illustrated in Table 2, data obtained by the EPA on pesticide contamination of human breast milk indicate that the concentrations of pesticides exceed by several-fold the acceptable daily intake established by the World Health Organization.

In conclusion, the presence of toxic chemicals in drinking water and in food obtained from aquatic environments have been shown, both through epidemiologic studies and through animal bioassay testing, to represent a serious health risk to the American public. Although both point and non-point sources are significant contributors to this burden of toxic pollutants, the non-point sources, particularly the run-off from agricultural land carrying pesticides and the run-off from urban environment carrying a broad range of organic compounds, represent significant contributions and should not be ignored in a national effort to restore the chemical, physical and biological integrity of our nation's waters.

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School of Engineering/Applied Science
Center for Energy and Environmental Studies
The Engineering Quadrangle
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July 25, 1983

Senator George Mitchell
U.S. Senate
Washington, D.C.

Dear Senator Mitchell:

In response to the questions which you posed to me during the Environment and Public Works Committee Hearing on July 19, 1983, I submit the following:

1. Should State development of a non-point source management plan be mandatory?

Answer: Yes, every State should be required to participate by developing a non-point source management program based on the different types of non-point source pollutants. However, the scope of plans may legitimately vary among the various States. No State is immune from significant non-point source problems and so no State should be free to simply ignore these problems.

2. Should there be a deadline for State implementation of its plan?

Answer: Yes, the non-point source problem is too important to allow foot dragging. However, the definition of "implement" should be flexible enough to accommodate various types of programs and responses by a State. The critical need is to move non-point source management beyond mere planning to actual implementation.

3. What should the deadline be?

Answer: I am not equipped to answer that question with certainty. However, my impression is that a great deal of information is already available to support implementation and the 48-month period in the sub-committee bill sounds reasonable to me. The committee should recognize that some aspects of a State program can be implemented more rapidly than others, so that the 48-month date or any other deadline that is chosen should not be allowed to excuse slower implementation for parts of the plan that can be implemented sooner.

4. Should the present provision concerning federal consistency be retained?

Answer: Some meaningful mechanism definitely is needed to assure that one part of the federal government does not undercut the work of another, and that the implementation efforts of a State cannot be undercut unilaterally by actions of the federal government. When that happens it not only hurts the environment but wastes federal money and encourages cynicism about the activities of government programs.

5. Should the committee retain the existing provision that a down-stream State may petition the administrator to require compatibility of planning by an up-stream State?

Answer: This provision or something very close to it should be retained. Much experience has shown the importance of mechanisms that will force an up-stream State to pay attention to down-stream problems to which it is contributing.

I appreciate the opportunity of testifying before your committee and am pleased to provide these additional comments.

Very truly yours,

Robert H. Harris

Robert H. Harris
Co-director, Hazardous Waste
Research Program

RHH/jw

STATEMENT OF MOHAMED T. EL-ASHRY
DIRECTOR OF ENVIRONMENTAL QUALITY, TENNESSEE VALLEY AUTHORITY
BEFORE THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
WASHINGTON, D.C., JULY 19, 1983

I am pleased to appear before you today in response to your request for information about nonpoint sources of water pollution and as such I am not commenting on or proposing specific legislation. My testimony is based on the experience TVA has had with nonpoint pollution since the 1930s. As a Federal agency with a regional perspective on natural resource management, TVA is interested in improving water quality. In the legislation that created TVA 50 years ago, the agency was charged by Congress--among its other obligations--with promoting the conservation, unified development, and wise use of natural resources in the Tennessee Valley. Although TVA has little primary regulatory authority, the agency has become a major force in the region for environmental protection and correction. TVA works closely with State and Federal regulatory agencies to deal with pollution that could affect the health and welfare of the people in general and TVA reservoirs in particular. Citizens of the Tennessee Valley have come to expect TVA to develop and publicize information on environmental effects, and we believe they have confidence in our data, our objectivity, and our technical judgment.

Beginning in 1936, long before the Federal Water Pollution Control Act, TVA undertook a basinwide survey of water quality in the Valley and found that the most pressing nonpoint source pollution was sedimentation in streams and rivers caused by agricultural soil erosion.

Seven million of the 12 million acres of cleared land in the Tennessee Valley were suffering from serious soil erosion in 1933 and huge gullies across the landscape were common. A solution involving Federal, State, and local cooperation was found; but now there is a need for the Nation to press forward with similar solutions for agricultural activities, urban runoff, surface mining operations, and hydrologic modifications.

In this testimony, I want to share with you (1) the knowledge TVA has developed about the significance of nonpoint sources of pollution in our seven State region; (2) some of the actions TVA has taken to encourage other Federal and State agencies and local groups to cooperate in addressing nonpoint sources and their effects; and (3) recommendations for elements of a national program to cost effectively address nonpoint source pollution.

Nonpoint Source Water Pollution

National water pollution control efforts thus far have concentrated on point sources. These pollution sources required engineering solutions that were familiar to water quality professionals. As point source control requirements have been implemented, nonpoint sources have become recognized as a larger contributor to the remaining pollution in our Nation's waters.

In some cases, only pollutants from the gross point sources were addressed while pollutants from nonpoint sources continued to impact designated uses. A good example of how failure to address both point and nonpoint sources has resulted in expenditures for point source abatement without restoration of designated uses involves a chemical company plant at Copperhill, Tennessee. The industry has expended $10 million to treat point source effluent from the plant. However, 30 miles of the Ocoee River and three TVA reservoirs are still biological deserts because of runoff of sediment and large amounts of toxic heavy metals from the plant site and 6,000 acres of denuded lands.

In the Tennessee Valley, the most widespread nonpoint source pollutant is still sediment. Siltation of rivers smothers fish and aquatic life, increases treatment costs for potable water supplies, reduces the flood carrying capacity of rivers, fills reservoirs, and depletes our valuable soil resources. Agricultural and surface mining activities cause the majority of sediment runoff in the Tennessee Valley region. Strip mining for coal has severely affected aquatic life and caused critical water quality impacts from north Alabama and east Tennessee to southwest Virginia. Upper Bear Creek Reservoir, a TVA impoundment in north Alabama, built to provide recreation and a quality regional water supply for economic development, is adversely affected by silt and acid runoff from abandoned strip mines. Silt was found to be accumulating up to three feet per year in some parts of the reservoir. The water supply and recreational activities have been adversely impacted.

Noncoal mining activities have also caused serious nonpoint source pollution. Sediment from mica and feldspar mining in western North Carolina has destroyed natural aquatic communities in over 100 miles of the Nolichucky River and has almost completely filled one TVA reservoir. The siltation forced TVA to retire the project, and we can no longer generate electricity for peak power purposes from this TVA project. Other more expensive power sources are needed to replace the peak power generating capacity of this project. For the past two years, TVA has been involved in a demonstration of how abandoned mineral mines and tailings piles in this area could be reclaimed. Totaling 160 acres, the demonstration resulted in the development of effective reclamation techniques for revegetating eroding areas and reducing sediment loading to surface waters.

Excessive amounts of soil erosion from cropland, averaging 40 tons per acre per year and up to 200 tons per acre per year on some farms, seriously affect water quality and fisheries in western Kentucky, western Tennessee, northern Alabama, and northern Mississippi. Consequently, many of the streams and rivers do not meet the interim 1983 goal of the Clean Water Act for protection and propagation of fisheries populations. This eroded topsoil has caused extensive flooding and swamping of formerly productive cropland and pasture, has resulted in damage to bridges and massive timber kills, and has destroyed fish life. In one eight-county area of the western part of the Tennessee Valley, more than $11 million of damage is estimated to occur each year to agricultural crops and timber resources. In western North Carolina, sensitive trout populations have been eliminated in agricultural watersheds because of accelerated cropland erosion. Runoff of pesticides, nutrients, and bacteria from agricultural activities have degraded fish populations, increased the nutrient loading in TVA reservoirs, and could affect public health from polluted water supplies.

Urban nonpoint sources of pollution are more complex than agricultural and mining sources. Raw sewage diluted by runoff is released to urban streams in the Bristol area of Virginia and Tennessee; Chattanooga and Knoxville, Tennessee; and Asheville, North Carolina. Overloaded sanitary sewers and old, leaking sewers add additional pollutants to TVA reservoirs and their tributaries. Erosion and sedimentation from construction activities choke urban streams, cause flooding, and eliminate aquatic life. Pollutants washed off industrial land, leached from solid waste disposal sites, and discharged from frequent spills commonly cause poor water quality. One of the critical water quality problem areas in the Valley occurs in tributary streams to Fort Loudoun Reservoir from urban runoff and sewer overflows in Knoxville, Tennessee. Water quality studies conducted as part of the Section 208 planning program showed that fecal coliform bacteria, oxygen-demanding material, nutrients, and metals were the major pollutants in stormwater runoff. In addition, TVA investigations documented that air pollutants were being washed into urban streams in sections of the city containing large impervious surfaces, and this contribution from the air adds to the metals burden of TVA reservoirs.

TVA Involvement In Nonpoint Sources Of Pollution

TVA has addressed poor water quality from nonpoint pollution sources through its traditional role of research, demonstration, participation in cooperative water quality improvement projects with other agencies, and more recently as a leader and facilitator in focusing the attention of regulatory agencies and the public on water pollution. In the early days, TVA was instrumental in reforesting millions of acres of badly eroding agricultural land in the Valley. Some of the most highly eroded lands are now thick forests that look as if they had never been disturbed. TVA also conducted research to establish cause-effect relationships between revegetation of eroded agricultural watersheds and resulting changes in hydrology and sediment transport. TVA pioneer work at White Hollow watershed in east Tennessee and Pine Tree Branch in west Tennessee in the 30s, 40s, and 50s showed that sediment loads can be reduced 95 percent following land treatment.

In the 1960s TVA placed emphasis on comprehensive demonstrations of multiple soil conservation and land management practices in larger watersheds to help increase the economic base of agricultural communities. For two of these demonstrations, Chestuee Creek watershed in Tennessee and Parker Branch watershed in North Carolina, the average net cash income per farm on test-demonstration farms increased three to fourfold over five years with the implementation of soil conservation practices and land management changes. With reductions in sediment transport of 45-70 percent, soil conservation practices were shown to be effective in improving water quality. The key to healing the scars of the Tennessee Valley involved the combination of demonstrations, interagency cooperation, educational activities, and local involvement.

But then came the market pressures of the 1970s and farmers in west Tennessee began planting soybeans on areas susceptible to erosion. Large equipment tore up the old terraces and serious erosion became more evident. By the late 1970s cropland erosion averaged 40 tons per acre per year in the 21 counties of west Tennessee. Once again, TVA, the U.S. Department of Agriculture, and land grant universities began a cooperative program known as Save Our Soil (SOS) targeted at the use of conservation tillage and winter cover crops in west Tennessee. In 1979, the Department of Agriculture and TVA signed a cooperative agreement to initiate a six-point program of demonstrations, educational efforts, cost sharing, and technical assistance. In four short years, use of no-till practices increased in the area from 40,000 acres to over 225,000 acres in 1982. On about 100 TVA demonstration farms, soil erosion has been cut by 74 percent, saving almost 1.2 million tons of topsoil each year. Crop yields have increased and production costs have gone down. The demonstration and educational efforts have recently been extended to areas in north Alabama, that have similar cropland erosion. This successful program demonstrates that cooperative Federal, State, and local efforts, when focused on a targeted area, can make progress in controlling agricultural nonpoint pollution sources. A strong national program, however, is needed to follow through on these limited initiatives.

In the late 1950s, TVA recognized the water quality damage being caused by nonpoint source pollution from unreclaimed coal strip mines in Appalachia. In the early 1960s, TVA foresters conducted research on reclaiming strip mined lands and by 1965, TVA required strip mine reclamation as part of its coal purchasing contracts. This was 12 years before the 1977 Federal surface mining act was passed. TVA conducted demonstrations of reclamation throughout Appalachia and in 1972 developed reclamation techniques that were later incorporated into the 1977 Act. In the 1980s, TVA has been a leader in identifying watersheds and rivers that continue to be affected by nonpoint source mining pollution, and we act as a facilitator to focus interagency attention on specific impact areas. A good example involves the north Alabama reservoir that I mentioned earlier. TVA conducted the scientific investigations to define the significance of the water quality effects and major sources of pollution. Coal mining was identified as the major source. TVA organized a local, State, and Federal multiagency effort to focus more regulatory attention on the coal mining activities and to secure Title IV reclamation funds for accelerating reclamation.

TVA has not only played this facilitator role for mining but also in other nonpoint areas. In southwest Virginia, runoff from the plant site of an old chlorine production plant and seepage from huge waste ponds at the site contributed mercury to surface waters and contaminated fish in Virginia and Tennessee. TVA assisted in bringing the States of Tennessee and Virginia, and the U.S. Environmental Protection Agency together and the pollution is currently being cleaned up under a "Consent Order" by the industry. In addition, we have joined with the U.S. Soil Conservation Service, the State of Tennessee, and local agricultural groups in a cooperative effort in a tributary watershed of the Tennessee River to reduce nutrient and bacterial levels through improvements in animal waste management, septic tank system maintenance, and erosion control. TVA is conducting water quality studies to pinpoint priority small watersheds for implementing nonpoint source control measures and is providing technical assistance and project management. USDA agencies are providing cost sharing incentives, educational programs, and technical assistance.

TVA has also sought and accepted responsibility from the Governor of Tennessee under Section 208 of the Clean Water Act as an area management agency with respect to nonpoint sources of pollution originating from properties under TVA custody and control. We have developed best management practices (BMPs) in forest harvesting; we have provisions for using BMPs to control erosion and sedimentation from land disturbing activities as part of deeds, easements, leases, and permits issued by TVA; and we are developing requirements for BMPs in our agricultural license for crop production on TVA lands. But this land under TVA control represents only a small portion of the land in the Valley, and the total, cumulative impact of nonpoint sources of pollution on the streams and reservoirs in our region must still be addressed.

The adverse water quality impacts of dam releases have been nationally recognized. In 1978, TVA completed a comprehensive assessment of the impact of its dam releases on downstream water quality and use, and we are currently completing a 3-year experimental program to improve dissolved oxygen in our dam releases. Improvements in aeration devices by TVA engineers have increased dissolved oxygen concentrations in water released through turbines by two to three mg/l. These devices may be useful across the country in improving release water quality.

A National Nonpoint Source Approach

Abuse of land resources and failure to use wise land management practices stand out as the most serious and most neglected of major environmental issues facing this Nation, and nonpoint source pollution is merely a byproduct of this abuse and mismanagement. The most cost effective tool for dealing with nonpoint sources is simply the use of proper land management practices.

It is TVA's experience that voluntary mechanisms for implementing nonpoint source measures simply do not work and that any benefits are only localized in nature. If the Nation is to meet the goals of the Clean Water Act, a national enforceable program for nonpoint source pollution control is needed.

An important first step for addressing these sources involves identification of watersheds where nonpoint sources are known or suspected to be major contributors to poor water quality and the development of a priority list for resolving the impacts. Existing State water quality standards may not be sufficient for basing this assessment. The reason is simply that many States have not adopted water quality standards applicable to pollution from sediment, "eutrophication" from excessive nutrient loadings, and toxics that may have nonpoint source origins. It is essential that this identification be based not only on violations of existing standards but also on meeting designated uses.

A Federal presence is also essential. A key element in our success in organizing interagency cooperative projects that focus on priority areas involves the Federal presence of TVA and our willingness to serve as a facilitator to get others to cooperate on a regional, sometimes interstate basis. Many serious water quality problems in our Nation are interstate in nature. A Federal agency such as EPA should be given sufficient authority, needed funds, and the responsibility to oversee the preparation and implementation of adequate measures for improving water quality in priority areas.

For a nonpoint source management program to succeed, Federal, State, and local cooperation is essential to focus coordinated efforts on high priority watersheds. TVA has found that different Federal agencies have valuable capabilities and experience essential to finding solutions to nonpoint source pollution. In such cooperative efforts, educational activities proved to be essential to inform the land user about the environmental impacts of his land management practices as well as the benefits he would reap by implementing best management practices. In addition, State legislation or local ordinances may be needed to gain compliance. Examples include Iowa's approach to soil erosion or North Carolina's approach to urban erosion control and stormwater management.

A system of incentives and disincentives is also essential to achieve the use of sound land management practices for improvement and protection of water quality. Tax credits, cost sharing, and increased technical assistance may provide incentives to implement BMPs. However, economic incentives need to be coupled with the potential use of disincentives such as sanctions. Federal, State, and local consistency determinations and restrictions on government subsidies for those not implementing BMPs may be needed to ensure that water quality improvement will occur in priority areas.

Summary

Of the 10 critical water quality problem areas that exist today in the Tennessee Valley, seven have nonpoint source origins. Across the Nation, nonpoint sources of pollution not only prevent attaining the goals of the Clean Water Act, but they threaten the public investment in water resources projects, they force the public to bear tremedous social costs of pollution, and they have forced the expenditure of millions of dollars of public funds to study the poor water quality and to treat only symptoms, not the causes.

It is clear that mechanisms need to be established to achieve the installation of nonpoint source control measures in priority watersheds and river basins. Control measures have been developed and many appear to be quite cost effective. The major impediment seems to be institutional in nature. A national program is needed to address these diffuse sources of pollution in priority areas. A Federal presence and a system of incentives and disincentives will likely be required to achieve Clean Water Act goals in these areas. This national approach should also involve the prevention of future impacts through use of proper land management practices and effective planning mechanisms. This strategy of avoiding problems rather than installing control practices after water quality has been adversely impacted should prove to be the most cost effective approach for protecting water quality in our Nation's waters.

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

OFFICE OF THE BOARD OF DIRECTORS

August 2, 1983

The Honorable Robert T. Stafford
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On July 19 the Tennessee Valley Authority (TVA) provided the committee with a statement on TVA's experience and accomplishments in dealing with nonpoint sources of pollutants. Following that presentation the committee asked for more specific information on TVA's views as to how related water quality concerns might be addressed.

In response to your July 26 letter to Mohamed El-Ashry, we are enclosing a proposal outlining a 5-year demonstration on how to identify measures, such as streamflow regulation, that can mitigate the adverse impacts of certain reservoir releases and to evaluate the associated costs, benefits, and constraints, including increases in power generating costs, of these measures.

In preparing this proposal for the committee's consideration, we have discussed it with the Environmental Protection Agency (EPA) and have given them a copy. We anticipate that any study approved by Congress would be coordinated with and conducted under the auspices of EPA in accordance with their responsibilities under the Clean Water Act.

Sincerely,

C H Dean Jr

C. H. Dean, Jr.
Chairman

Enclosure

An Equal Opportunity Employer

NATIONAL DEMONSTRATION OF METHODS TO IMPROVE THE QUALITY OF RESERVOIR RELEASES, TENNESSEE VALLEY AUTHORITY, KNOXVILLE, TENN.

Major water resource project development in the United States during the last half century has proceeded on a scale that is without precedent and that is nothing less than phenomenal. Existing projects will continue to generate major economic and social benefits for many years to come. Experience in the operation of water projects, however, reveals that environmental and social impacts can be incurred which, to varying degrees, reduce overall project benefits. Among the major adverse and costly effects is water quality deterioration downstream from dams, a problem that is typically most acute in controlled large river systems having multiple dams and reservoirs. Similar effects may also occur in single dam projects or on smaller controlled streams where high nutrient input from the watershed combines with project design features to induce stratification and related water quality deterioration in deeper parts of reservoirs. The principal downstream effects of water quality impairment are reduced sport and commercial fisheries, increased treatment costs for municipal and industrial water users, and reduction of the natural waste treatment capability of the stream.

The general public, industry, and government at all levels, have now begun to recognize these widespread problems. As a result, there should be an organized effort to define the extent of the problem and to devise and test means for mitigation. TVA has accumulated a wealth of background water quality information from operational water resource projects within the Tennessee River system and has begun to identify opportunities for water quality improvement through dissolved oxygen enhancement and streamflow reregulation. Lack of adequate funding, however, has precluded the protracted and systematic investigations needed to test and prove mitigation methods having promise of national applicability.

TVA is proposing a demonstration of national significance involving three major evaluations of the efficacy of water quality enhancement and streamflow regulation downstream of dams. The demonstration would be conducted under the auspices of the Environmental Protection Agency because of the agency's mandate ". . . to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The demonstration will identify the benefits resulting from these measures and the social and monetary costs, including unavoidable increases in power costs. This work could begin in 1984 or 1985. The proposed evaluations would have an overall cost of approximately $21 million and would require from three to five years to complete.

TENNESSEE VALLEY AUTHORITY
PROPOSAL FOR A NATIONAL DEMONSTRATION OF METHODS TO IMPROVE THE QUALITY OF RESERVOIR RELEASES

Introduction

Over the last 50 years most of the best sites for large-scale water resource projects have been developed in the contiguous United States. These projects, with their long service lives, have provided and are continuing to provide major economic and social benefits to the country. The majority of these projects were constructed for purposes such as flood control, navigation, hydroelectric power, and water supply. Little consideration was given to downstream water quality and uses, particularly in older projects. Stated another way, water quality impacts and effects on downstream uses were often either not fully anticipated or considered as acceptable trade-offs to achieving the "higher valued" primary purposes of the project.

In recent years scientific research has begun to assess what changes occur when a river is impounded. This has indicated that reservoir water quality improves and associated benefits increase initially with impoundment. However, as the impoundment ages or begins to change because of nutrient enrichment, water quality may deteriorate. One indication of this naturally occurring process is poor water quality in the releases from some reservoirs, particularly from lower levels in stratified reservoirs with long storage or retention times. Dissolved oxygen concentrations can approach zero (mg/l) and dissolved iron and manganese, hydrogen sulfide, ammonia, and turbidity often reach levels that are undesirable.

The operation of dams may also alter water temperatures which can have significant effects on downstream fisheries. These altered water quality conditions affect recreational fishing, municipal and industrial water supplies, and the ability of the river to assimilate treated waste waters.

In situations where there is only one dam, the downstream impacts may be localized; however, the cumulative impacts of multiple dams may extend for many miles and severely limit the capacity of downstream reaches to support present and future water uses. This is a major resource management problem, the solution of which may involve technological and operational modifications at the dams, more stringent point and nonpoint source pollution controls in the drainage basin, and/or the more controversial issue of possible project reevaluation and reallocation of project purposes. No comprehensive study has been undertaken at the national level to demonstrate and evaluate methods of improving reservoir releases in this context. Recent litigation, legislative proposals, and renewed public interest on improving water quality highlight the need for such an investigation.

Proposal for a National Demonstration

The Tennessee Valley Authority proposes a demonstration of national significance to identify, test, and evaluate measures that can mitigate the adverse impacts of reservoir releases. TVA, with its large integrated system of dams and a long history of carrying out a variety of national demonstrations under its statutory mandate, is an ideal choice for this purpose. With its diversified technical and operational expertise, TVA is also uniquely capable of identifying and evaluating the associated costs and constraints of any such demonstration.

The TVA reservoir system has the following characteristics essential to such a demonstration:

1. An integrated system of dams similar to those built in other regions of the country that currently exhibit the water quality conditions previously described.

2. A moderate range of climatic and hydrologic conditions that would allow any findings to be tranferable to other areas.

3. An organization capable of addressing technological, institutional, and operational considerations at the local as well as national level.

4. An existing body of knowledge about the chemical, biological, and physical conditions at most of the dams in the TVA integrated water control system.

As a water resource management agency, TVA is familiar with water quality issues at the national and regional level.[1,2] With respect to dams, TVA's 1978 report on reservoir releases is one of the most comprehensive documents ever assembled on dam-related water quality concerns.[3] The

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1. Tennessee Valley Authority, Where The Water Isn't Clean Anymore, 1978.

2. Tennessee Valley Authority, Is The Water Getting Cleaner?, 1980.

3. Tennessee Valley Authority, Impact of Reservoir Release on Downstream Water Quality and Uses - Special Executive Report, 1978.

report not only identified where problems exist in the TVA system but suggested potential mitigative actions and recommendations for future work. Following this study, TVA began a 3-year experimental program on improving dissolved oxygen downstream of its dams. Results from the first two years include initial field testing of several alternatives for increasing dissolved oxygen and minimum streamflows.[4,5] This research has resulted in TVA becoming the national leader on this environmental issue.

The demonstration being proposed by TVA would be applicable to individual water resource projects and integrated basin-wide systems. It would also enhance the waste management flexibility of water users in the near term. With comprehensive national planning and implementation, the proposed water quality improvement methodologies could become the focus of a national effort to enhance and conserve water resources for the protection and propagation of fish and other aquatic life, wildlife, recreation, water supply, agriculture, industry, and other necessary and appropriate uses. It would also be a logical extension to the Environmental Protection Agency's (EPA) water quality efforts under the Clean Water Act. As a result, the demonstration should be carried out under the auspices and funding of EPA.

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4. Tennessee Valley Authority, Improving Reservoir Releases, 1981.

5. Tennessee Valley Authority, Improving Reservoir Releases - Second Annual Report, 1983 (in press).

TVA and EPA presently maintain a cooperative agreement that could be utilized for this purpose. The demonstration and TVA's participation in the program would build on TVA's experience and would examine, in depth, the effects of and potential solutions to water quality problems such as low dissolved oxygen, temperature fluctuations, iron, manganese, hydrogen sulfide, and ammonia. The proposed activities outlined in the following workplans are within TVA's capability and are expected to take from three to five years to complete.

Under the TVA Act, dams and reservoirs are required to be operated primarily for navigation and flood control and, to the extent consistent with these purposes, for the generation of power. The proposed activities would not affect navigational and flood control purposes; however, revised operational schedules will result in shifting power releases to off-peak hours and possible increases in spilled water. When this adversely affects power system costs, reimbursement expenses are identified.

HOLSTON RIVER BASIN PROJECT

Objective

This project would demonstrate methods to alleviate low dissolved oxygen, intermittent streamflow, and incompatible water temperatures in a highly developed watershed (see diagram).

Test Site

This project would be conducted in the Holston River basin, which is located in the northeastern part of the Tennessee Valley. The basin is heavily industrialized, especially in the Bristol-Kingsport-Johnson City area. The drainage area upstream of Cherokee Dam is

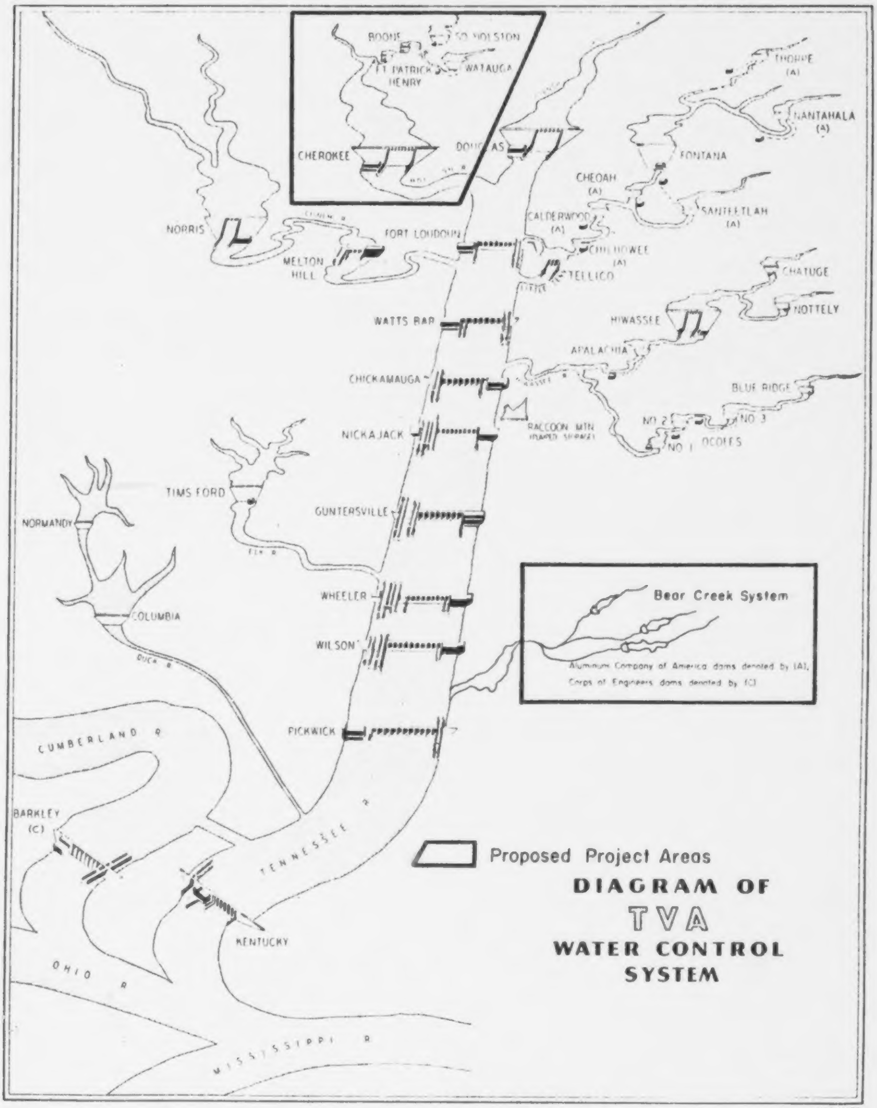

BOONE
SO. HOLSTON
FT. PATRICK HENRY
WATAUGA
CHEROKEE
DOUGLAS
THORPE (A)
NANTAHALA (A)
FONTANA
CHEOAH (A)
SANTEETLAH (A)
CALDERWOOD (A)
CHILHOWEE (A)
TELLICO
NORRIS
FORT LOUDOUN
MELTON HILL
CHATUGE
NOTTELY
HIWASSEE
APALACHIA
WATTS BAR
CHICKAMAUGA
BLUE RIDGE
RACCOON MTN (RAPID SPRING)
NO 2
NO 3
NO 1
OCOEES
NICKAJACK
TIMS FORD
GUNTERSVILLE
NORMANDY
ELK R
WHEELER
COLUMBIA
WILSON
DUCK R
PICKWICK
CUMBERLAND R
BARKLEY (C)
TENNESSEE R
KENTUCKY
OHIO R
MISSISSIPPI R
Bear Creek System
Aluminum Company of America dams denoted by (A).
Corps of Engineers dams denoted by (C)
Proposed Project Areas

DIAGRAM OF
TVA
WATER CONTROL
SYSTEM

3,776 square miles. There are six TVA dams in this subbasin. These dams regulate most of the river basin, but long reaches of the river are still unimpounded.

Releases from these dams are generally low in dissolved oxygen during the summer and early fall. At times, dissolved oxygen levels in certain of the reservoir releases approach zero. Each of these dams provides peaking capacity hydropower to the TVA system. Consequently, flows are interrupted for extended periods. Also during certain times of the year, the temperature range of release water can have adverse effects on existing downstream fisheries.

Reservoir releases in the uppermost part of the basin have the potential to significantly enhance downstream trout fisheries. Releases from Cherokee, the large dam near the lower end of the river, have the potential to support a major warmwater fishery. The enhancement of a warmwater fishery during the test period would be a goal of this project.

Testing Measures

During the testing period, the releases from the Cherokee, Fort Patrick Henry, Boone, South Holston, and Watauga/Wilbur Dams would be regulated to increase dissolved oxygen to various concentration levels up to State and Federal criteria levels. The oxygen levels would be increased by methods that can result in demonstrating the most promising techniques for national application. Various ranges of minimum flows will also be maintained for evaluation below South Holston, Watauga/Wilbur, and Cherokee Dams.

Releases from these dams would be scheduled during the course of the year to enhance the fishery downstream of the dams. Computer modeling would be used to identify the operational mode needed to achieve objectives. As part of this project, site-specific aquatic life criteria for selected fish species would be examined.

Timeframe

The tests to enhance dissolved oxygen and minimum flows would be conducted over a 5-year period, and the tests to enhance temperature conditions would be conducted over a 3-year period.

Resource Requirements

The hydroelectric units at these dams are principally used for peaking purposes. Thus, the power generated by these dams is used in lieu of more costly sources of power and is therefore very valuable to the power system. The above tests would result in some loss of power production efficiency and releases during off-peak hours when the power is worth much less. This differential represents a direct economic loss. As a result, the power system must be reimbursed for any power losses. It is estimated that this cost is approximately 50 percent of the total project costs. The other major cost is the more extensive technological measures that would be required to increase dissolved oxygen to recommended State and Federal levels. The dissolved oxygen, minimum flows, and temperature-related tests would cost approximately $13 million. The design and evaluation costs are $4 million with a total estimated project cost of $17 million as indicated in the following table.

	Fiscal Year (10^6 $'s)				
Holston River Basin Project	'84	'85	'86	'87	'88
Subtotals	4.3	4.3	2.8	2.8	2.8

UPPER BEAR CREEK PROJECT

Objective

This project would demonstrate methods to increase dissolved oxygen and reduce concentrations of iron, manganese, hydrogen sulfide, and ammonia in low-level reservoir releases from nonpower projects.

Test Site

The project would be located in the Bear Creek basin, in the southwestern part of the Tennessee Valley. The basin has a drainage area of 946 square miles. There are four relatively small TVA dams in the basin. One of the purposes of these dams is water supply. At times, releases from the Upper Bear Creek Project are high in iron, manganese, hydrogen sulfide, and other undesirable constituents. These constituents adversely affect the downstream fishery.

Demonstration Measures

During the demonstration period, mixing and oxygenation of the hypolimnetic waters with epilimnetic waters in the reservoir will be examined as a means of improving water quality without increasing dissolved nitrogen concentrations. This approach would allow precipitation and settling of the undesirable constituents in the reservoir instead of being released downstream. It would also avoid "gas bubble" disease in fish that could result from increased dissolved nitrogen levels from low-level reservoir releases.

Timeframe

The tests would be conducted over a 3-year period.

Resource Requirements

Total cost including design and evaluation is estimated to be $2 million as indicated in the following table.

Upper Bear Creek Project	Fiscal Year (10^6 $'s) '84	 '85	 '86
Subtotals	0.8	0.6	0.6

VENTABLE TURBINE PROJECT

Objective

This project would involve the development and testing of a prototype "ventable turbine," i.e., a replacement turbine wheel that is designed to achieve maximum air aspiration at minimum power losses.

Test Site

Tims Ford and Norris Dams are among the most likely candidate sites for the prototype turbine demonstration. Each project has the potential for significantly enhancing a year-round cold water fishery, and they both experience seasonally low concentrations of dissolved oxygen and inadequate minimum flows. The Tims Ford is being investigated by TVA in 1983 for releases of dissolved iron and manganese.

The Tims Ford project is located in middle Tennessee on the Elk River. The basin upstream of the dam drains approximately 529 square miles in a predominantly rural area. Norris Dam is in east Tennessee on the Clinch River. The basin upstream of Norris Dam drains approximately 2,912 square miles of rural Appalachia predominated by agriculture and coal mining.

Testing Measures

The first phase of this activity would be conducted primarily at a manufacturer's hydraulic test facility. Specific design calculations will be made to create low pressure regions on the downstream side of a turbine to achieve maximum air aspiration and minimum power losses. Computer modeling will be used to develop the final design. Based on this design, a model turbine will be built and tested. If test results are favorable, a prototype unit will be installed and field tested at an existing hydropower facility. The field testing will include index testing with and without aeration, measuring dissolved oxygen uptake and the concentration of total dissolved gases, water quality and fisheries studies, and monitoring turbine cavitation.

Timeframe

Developing and demonstrating an enhanced turbine runner design will require approximately five years. Two years are needed for designing and developing the runner at the manufacturer's test facilities. Fabrication and installation will require another year, and two years will be needed for field testing the prototype turbine wheel.

Resource Requirements

Using Tims Ford as the potential test site, the cost for the design and model tests of a new turbine runner is estimated to be $550,000. Fabrication and field testing is approximately $940,000 with an installation cost of approximately $310,000. The outage cost while the unit is being installed could be as much as $600,000, depending on the time of year and hydrologic conditions. (NOTE: If Tims Ford is selected as the test site, the installation and outage cost would be paid by TVA.)

The resource requirements for Norris Dam or any other project were not estimated, but they would likely be higher than Tims Ford.

	Fiscal Year (10^6 $'s)				
Prototype Turbine Project	'84	'85	'86	'87	'88
Subtotals	0.5	0.9	0.8	0.1	0.1

ECONOMIC CONSIDERATIONS

Determining who will pay the costs and under what arrangements are important considerations in improving the quality of releases from existing dams.

As a result, the demonstration will include an evaluation of the financial aspects of the most promising water quality improvement methodologies in TVA's study as well as those demonstrated by other agencies. This would include an economic analysis, a cost allocation, and the exploration of potential cost-sharing arrangements. The economic analysis would be done in accordance with the criteria applicable to Federal water resource development agencies. Presently, these are the "Principles and Guidelines for Planning Water Projects" which were approved by the President on February 3, 1983. Allocation of costs would be undertaken in accordance with the Separable Cost-Remaining Benefit Method, which is the procedure commonly used by the U.S. Army Corps of Engineers and other Federal water planning agencies, including TVA.

Cost-sharing policies and procedures for collecting user fees are not as well established. Thus, various alternatives would be identified and examined. This examination would extend to assessing the feasibility of the alternative schemes and their appropriateness. As part of this process, beneficiaries would be identified along with possible arrangements for their participation in a cost-sharing and reimbursement scheme.

Conclusion

It is recommended that Congress authorize and fund an EPA demonstration utilizing the Tennessee River system as a vehicle for testing and evaluating dam-related water quality improvement technologies under which TVA would conduct these demonstrations. EPA would oversee this program because of its mandated responsibilities for water quality conservation and the fundamental implications the demonstration would have for improving water quality nationally. The cost for the program is approximately $21 million. The tests will take three to five years to complete. During this period TVA will provide periodic reports to EPA and Congress on the effectiveness of the various water quality improvement methodologies. A final report will also be prepared summarizing the results of the program, their implications, and recommendations on how dam-related water quality impacts could be addressed nationally.

TENNESSEE VALLEY AUTHORITY
KNOXVILLE. TENNESSEE 37902

OFFICE OF THE BOARD OF DIRECTORS

September 6, 1983

The Honorable Robert T. Stafford
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

At the committee's July 19 hearing examining the need to control nonpoint sources of pollution under the Federal Water Pollution Control Act, Senator Mitchell asked Dr. El-Ashry to provide TVA responses to several questions. TVA's responses to those questions are enclosed, and we ask that they be included in the hearing record.

Time did not permit obtaining advice from the Office of Management and Budget concerning the relationship of Dr. El-Ashry's July 19 testimony to the program of the President. Subsequent to the July 19 hearing we have been advised by OMB that our testimony and the attached answers to Senator Mitchell's questions are not in accord with the program of the President.

OMB has asked us to indicate that there are many complex administrative and institutional questions imbedded within this issue. For instance, the Administration is especially concerned about the Federal-state relationship. Finally, there is an internal review effort now being made to evaluate the nonpoint source issue and the results should be known shortly.

Sincerely,

CHDean

C. H. Dean, Jr.
Chairman

Enclosure

ANSWERS TO QUESTIONS POSED BY
SENATOR MITCHELL AT JULY 19 HEARING
BEFORE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

Question 1: Should participation in the program be mandatory in nature?

Answer: Yes. It is TVA's experience that voluntary mechanisms for implementing nonpoint measures are not very effective and that nationwide benefits are not being realigned. If the Nation is to meet the goals of the Clean Water Act, a national enforceable program for control of nonpoint source pollutants is needed.

Question 2: Should the program include deadlines for State implementation?

Answer: Yes. Deadlines are important to achieve program goals.

Question 3: What should be the deadline for implementation?

Answer: The Municipal Wastewater Treatment Construction Grant Amendments of 1981 provided for extensions of the "secondary treatment" requirement for qualifying publicly owned treatment works until 1988. A similar deadline of 1988 for national nonpoint controls would be reasonable.

Question 4: Should the program include cross compliance provisions?

Answer: Yes. A system of incentives and disincentives is essential to achieve the use of sound land management practices for improvement and protection of water quality. Economic incentives alone are likely to be insufficient to achieve needed water quality improvement and should be coupled with the potential use of disincentives such as sanctions. Federal, State, and local consistency determinations and restrictions on government subsidies for those not implementing best management practices are appropriate to ensure that water quality improvement will occur in priority areas.

Question 5: Should the program retain the existing provision allowing a downstream State to petition EPA to require development of upstream State plans compatible with plans of a downstream State?

Answer: Yes. As TVA indicated in its testimony, many serious water quality problems in our Nation are interstate in nature. A Federal agency, such as EPA, must be given sufficient authority, needed funds, and the responsibility to oversee the preparation and implementation of adequate measures for improving water quality in priority areas, including interstate waters. An appropriate function of this Federal entity would be to ensure consistency among upstream and downstream State plans.

Office of Natural Resources
July 1983

NON-POINT SOURCE
WATER POLLUTION CONTROL

Testimony before the
Senate Committee on Environment
&
Public Works

July 19, 1983

Presented by

Lee W. Stokes, Ph.D.

Administrator, Division of Environment
Idaho Department of Health & Welfare

I appreciate the opportunity to provide information on Idaho's non-point source pollution control program and to suggest some ways that our conclusions might be used to shape federal legislation on that subject. The Committee has received supplemental written testimony which develops our point of view beyond the condensed version I will present now.

We have four basic points for your consideration:

1) There is a serious non-point source pollution problem in the West which deserves attention through federal legislation.

2) The State of Idaho has developed a voluntary cost sharing program to deal with agricultural pollution problems.

3) Non-regulatory programs can work to prevent non-point source pollution, if given sufficient time and attention.

4) Federal legislation on non-point sources should include implementation money; perhaps the states' programs should be mandatory, but such legislation absolutely should not require regulatory programs for at least five years after approval by EPA.

Most non-point pollution other than agricultural types, emanate from public lands in Idaho. Therefore, our incentive program was designed to concentrate on the private agricultural land. In case there is any doubt that the non-point source problem in Idaho is serious, I refer you to the photograph in our supplemental package, showing the effects of irrigation return water on the Snake River. It depicts part of the seven million tons of sediment to reach Idaho's streams from agricultural non-point sources each year.

Our 208 program identified, quantified, and prioritized such problems by stream segment. While we were successful in securing federal rural clean water program funds to treat one drainage, the Idaho legislature chose to provide substantial state funds for a cost sharing program in other priority drainages. Grant priorities are developed by application of a mathematical ranking system, a copy of which you will find in our supplemental testimony. $5.1 million in grants have been issued to soil conservation districts over the past three years and the money is cost shared with farmers at rates ranging from 15 to 75% to implement Best Management Practices. In one dryland farming project in the Palouse country, we have reached our goal of participation by landowners representing 75% of the critical acreage in less than one and one-half years. In spite of serious economic problems, those owners have committed to long-term (10 years) pollution control on thousands of acres of highly erodible land. Don't forget that many of these practices have been touted for their soil conservation value for many years. However, not until the water quality goal became the focal point and the seed money was presented did the farmers' participation reach acceptable levels. In fact, an Idaho farmer who has served in the legislature and on a Soil Conservation District Board stated that this is the first evidence of sustained progress in soil conservation he has seen in thirty years. Though none of the irrigated areas have full participation yet, the effects have been dramatic. Sediment reaching the streams has been reduced by 60 to 80%. Many farmers are now implementing BMP's without funding once they observe the soil conservation benefits of their neighbor's efforts. The change in attitude has been profound.

Federal legislation which would require replacement of our voluntary and educational program with a regulatory approach would destroy the momentum as well as the trust we have built in the agricultural community through great effort. Our existing program has been clearly shown to be technically, as well as politically, viable in our rural, conservative state. That effort deserves a financial shot in the arm by the federal government, but also deserves a chance to work on a non-regulatory basis.

A regulatory program would cost you more for monitoring and enforcement than the $150 million per year mentioned for implementation without a dime ever reaching the land. If money is appropriated, it should not be used for framework level planning. If states didn't effectively use the 208 program for that purpose, then they should be required to use state money or 205j money to do it.

Demonstration of technology has been accomplished. Let's implement the practices already identified to solve the recognized problems.

We have two more problems with the draft legislation. The concept of "cross-compliance" regarding federal programs is okay, but it might be too complicated to be practical. We would prefer that such requirements be placed in the generic statutes or regulations of each agency. Further, one state should not be able to force a program on another state. Rather, EPA should be empowered to operate programs in states where they are nonexistent, but critically needed.

Again, I thank you for the chance to participate in the discussions today.

STATE OF IDAHO

SUPPLEMENTAL TESTIMONY REGARDING A FEDERAL NONPOINT SOURCE PROGRAM

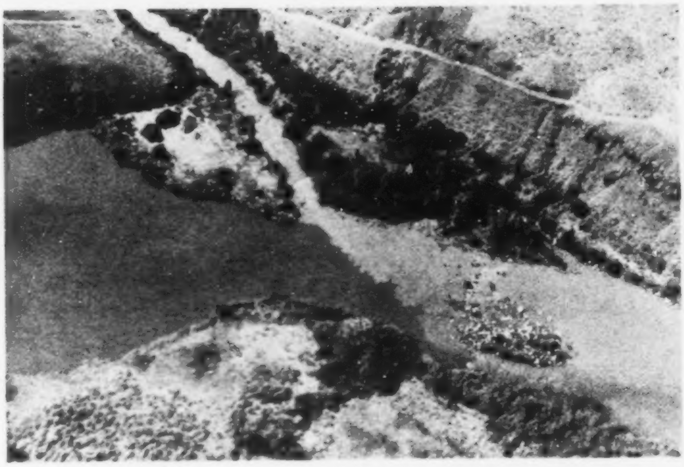
July 19, 1983

Submitted by Lee W. Stokes, Ph.D.
Administrator, Division of Environment,
Idaho Department of Health and Welfare
Boise, Idaho

SEDIMENT LOAD FROM

IRRIGATION RETURN FLOWS

INTO SNAKE RIVER



The recent introduction of bills which set forth a national nonpoint source program (Chaffee and Durenburger) has caused some concern in Idaho. Significant progress has been made in Idaho in addressing agricultural nonpoint source pollution problems and it is the opinion of those entities involved in this effort that a federal nonpoint source program which takes a regulatory stance would be detrimental to the accomplishments made to date. For this reason, the following suggestions are made for those developing a national nonpoint source program.

A federal nonpoint source pollution control program should address the following areas:

Problem assessment
Solutions
Institutional arrangements
Funding needs
Evaluation

In Idaho, an effective program which includes these elements has been in place since 1979. This program, though it addresses only agricultural pollution, could be used as a guide for other states and for a national program. The program is spelled out briefly below:

AGRICULTURAL PORTION OF IDAHO'S 208 WATER QUALITY MANAGEMENT PLAN

In 1976, under a 208 grant from EPA, the Idaho Department of Health and Welfare's Division of Environment contracted with the Idaho Soil Conservation Commission to develop a plan to abate agricultural pollution. The resulting Idaho Agricultural Pollution Abatement Plan was certified by Governor John V. Evans and approved by EPA in 1979. The plan includes the following elements:

Problem assessment - The Commission, with help from Idaho's 51 soil conservation districts, compiled a list of stream segments impacted by agricultural activities, including irrigated and non-irrigated cropland, as well as grazing. Water quality information and data on soil erosion were incorporated into this list. The stream segments were ranked into first and second priorities.

Solutions - The Commission assisted districts in compiling a list of solutions to agricultural pollution problems. Best management practices (BMP's) were selected at the local level., with much public input, and were then compiled into a statewide BMP catalog. Two demonstration projects were conducted to determine the effectiveness of dryland and irrigated BMP's in Idaho. These projects were very successful and set the stage for the entire program.

Institutional arrangements - The Commission outlined a management scheme for reducing agricultural pollution through a voluntary program of BMP installation. Idaho soil conservation districts unanimously supported this arrangement. The districts were selected as local management agencies and the Commission and Division were given statewide management responsibility. A five year trial period for the voluntary program was recommended in the plan, with a back-up regulatory program to be investigated, should the voluntary program be shown to be ineffective.

Funding needs - The Division, Commission and districts gathered extensive data on the costs of treating severe, moderate and slight agricultural pollution problems in Idaho. These included BMP planning and installation costs, as well as costs incurred in administering the program and providing needed technical assistance.

Evaluation - The Commission, districts and Division agreed that annual evaluations of the program would be needed to determine ongoing progress. In addition, a five year intensive evaluation would be conducted to determine if the voluntary program was working. Should this not be the case, the plan recommended investigating a regulatory program.

IMPLEMENTATION OF IDAHO'S AGRICULTURAL NONPOINT SOURCE PROGRAM

Idaho has been successfully implementing its agricultural pollution control program since 1979. It has been carried out in two distinct phases, planning and BMP installation.

Detailed Water Quality Planning - Beginning in 1979, 208 moneys were used to conduct detailed water quality planning on high priority stream segments. Soil conservation districts received these grants and identified critical erosion areas and other pollution sources within the project areas; they also selected BMP's needed to correct the problems and compiled cost figures on the needed treatment. A total of nine planning projects were completed between 1979 and 1983. The projects clearly demonstrated the districts' ability to carry out clean water activities. As part of the projects, the districts conducted intensive informational activities which effectively raised awareness of pollution problems and significantly enhanced the voluntary pollution control efforts. Water quality monitoring was also a part of the planning projects to establish baseline data prior to BMP installation and to help determine the location and severity of pollution problems.

BMP Implementation - Once planning was completed in each high priority watershed, BMP implementation funds were sought. The rationale for seeking cost-share assistance for BMP installation was based on the following: BMP installation requires extensive expenditures of farmers and provides few, if any, short term returns; benefits from BMP installation frequently accrue to downstream, non-agricultural publics; and potentially all citizens of the state gain from the farmers' reduction of pollution.

BMP implementation funds have been obtained in all nine of the projects having detailed water quality planning. Sources of funds have been both federal and state programs. One project received moneys under the Rural Clean Water Program. Seven of the projects received moneys under the new cost-share program which is described below. ASCS provided additional moneys for BMP installation. Significant reductions in erosion and associated pollution are being seen in project areas where BMP implementation funds have been provided. In one project area, 80% reductions in sediment loadings have been seen after 2 years of BMP installation. In another, similar reductions, ranging from 60-80%, have also been documented. Appendix A demonstrates sediment reductions achieved voluntarily.

In 1980, the Idaho Legislature authorized use of the state s Water Pollution Control Account for grants to soil conservation districts to reduce agricultural pollution. Prior to this date, the Account was used only for sewage treatment facilities. Currently the state has 7 projects in operation, on both irrigated and non-irrigated cropland. The districts, with technical assistance from SCS, develop water quality plans with individual farmers and enter contracts with the farmers to treat all critical areas on the farms. Cost-sharing is provided on installed BMP's at rates consistent with the prevailing ACP. Some BMP's are not cost-shared. Farmers are required to maintain the installed practices for the life of their contracts, which range from 5 to 10 years. The criteria for project success is an adequate level of participation, that is, having 75% of the critical acreage in a project under contract within 5 years of project start-up. The Division and Commission jointly administer the program. To date, grants totalling $5.1 million in state funds have been made. Local match for the grant funds is provided in the form of the farmers' portion of BMP costs.

The voluntary program is working in Idaho outside the project areas as well. All of Idaho's soil conservation districts have incorporated water quality activities into their annual plans of work. This demonstrates their commitment to locally managing this pollution control program.

RECOMMENDED ELEMENTS OF A FEDERAL NONPOINT SOURCE PROGRAM

Because of the successes of Idaho's voluntary program of reducing agricultural pollution, the following recommendations are made for a federal program aimed at controlling nonpoint source pollution. In brief, the recommendations center around states having EPA approved nonpoint source programs, with state options for a regulatory or voluntary program. Decisions about program implementation should remain at the state level, as should those relating to project funding, problem assessment, BMP selection, institutional arrangements, and program evaluation. EPA's approval of state plans would ensure that national nonpoint source goals are met. A national evaluation after 5 years of program implementation is recommended.

Problem assessment - Problem assessment, including location and severity of nonpoint source pollution, should be based on the planning conducted by the state. EPA approved 208 plans should be the starting point for this assessment. States without completed and approved plans should be given the time needed to develop these plans. Moneys for planning could be provided under Sections 205j, 208 or 106 of the Clean Water Act. Water quality and soil erosion data should be included in the plans. All states should have the option of determining nonpoint problem through their own mechanisms; one national assessment procedure should not be mandated.

Solutions - BMP's needed to correct nonpoint source problems should be those selected by the state under its planning process. BMP's must be adapted to local conditions and federally mandated practices may or may not be effective in all areas of the country. Those states having approved 208 plans should be allowed to use the BMP's selected under those plans and those states not having such plans should be given the opportunity to complete BMP selection.

Institutional arrangements - Institutional arrangements for a federal nonpoint source program should include the following:

(a) Grants to states having an EPA approved plan for nonpoint source pollution control. States with these plans in place are ready to begin correcting the problems. Grants should be made directly to states and the management schemes outlined by those states (and approved by EPA) should be utilized. Federal determinations of management schemes for all states would not be as successful as those developed by individual states because of the many variables affecting nonpoint source activities. Grants made directly by the federal government to individuals, or individual projects, would not be as effective as grants made from the state level. State control of the management scheme is essential. Grants to states would enable this. To ensure a truly national effort, EPA should have the right to start programs in states that refuse to start a nonpoint program or that have unsuccessful programs in place.

(b) State approval of projects. States, once they have an approved nonpoint source plan, should be allowed to approve projects without going to the national level for concurrence. In Idaho, and in other states as well, national approval of projects has significantly slowed the process of project start-up. The RCWP project in Idaho took two years to get from the planning to the implementation phase. Small Watershed projects have involved similar, sometimes longer, delays. It is critical in nonpoint source pollution control to move ahead quickly with a project once the local public support is developed. If people are ready to proceed with a project and then have to wait one or two years for approval and project funding, the chances of project success are greatly reduced.

(c) Voluntary program of BMP installation. Mandatory installation of BMP's at the national level is not an effective way of reducing nonpoint source pollution. The option for reducing nonpoint source pollution with a voluntary program should remain open. In Idaho, it is working. Some states may choose to carry out a regulatory BMP installation, but this should be a state by state decision, not one made at the national level. Farmers in Idaho are installing BMP's when they receive adequate technical, educational, and cost-share assistance. Idaho also has enforcement procedures that are followed when a nonpoint source activity adversely impacts a protected beneficial use. The entities involved in Idaho's agricultural program feel the voluntary program is the best one for Idaho; it should not be replaced by a federally mandated regulatory program.

(d) Management arrangements determined by state. It is critical to the success of a nonpoint source program that the management arrangements be determined at the state, not national, level. In Idaho, agricultural pollution control is being effectively carried out by the Division, Commission, and soil conservation districts. This arrangement has widespread support across the state; to change this arrangement because of national mandate would be detrimental to the program. The arrangement is set forth in the EPA approved abatement plan. A sound federal program would allow states to set forth the most viable management arrangements for their particular situations; EPA approval of these arrangements would be a means of ensuring that national nonpoint source goals are met. Grants to states could be contingent upon EPA approval of said arrangements. (Appendix B exemplifies the level of expertise Idaho soil conservation districts have in carrying out the state's program.)

Funding needs - It is critical that a federal nonpoint source program recognize the costs associated with controlling this kind of pollution. These costs are substantial. The proposed nonpoint source programs recommend an annual appropriation of $150 million for 5 years. This figure is woefully low. If one were to follow the formula in Durenburger's proposal, Idaho would get, at the minimum, $750,000 annually, with 10% for administration of the program. This would not be sufficient to solve all of the state's nonpoint source problems.

In the development of Idaho's agricultural pollution control program, costs were compiled for solving severe, moderate and slight pollution problems in the state. These costs include BMP planning and installation, technical assistance, administration, and BMP cost-sharing. The following are estimates for solving Idaho's moderate and severe problems only. It is apparent from these figures that the proposed $150 million would be inadequate to address national needs.

Severe Pollution Problems

	Annual	20 Years
Technical and Support Costs	$ 1,820,000	$ 36,400,000
BMP Installation	$12,347,140	$246,942,800
	$14,167,140	$283,342,800

Moderate Pollution Problems

	Annual	20 Years
Technical and Support Costs	$ 1,703,000	$ 34,060,000
BMP Installation	$31,450,250	$629,005,000
	$33,153,250	$663,065,000

The costs of correcting agricultural nonpoint source pollution problems seem astronomical. When one looks at water quality data in Idaho over the past decade, however, it is apparent that the most significant water quality problems remaining to be solved are nonpoint source related. Much effort has been expended to date solving point source problems. Approximately $2.4 billion is allocated annually for municipal construction grants, with Idaho receiving approximately $12 million annually. This is a far cry from the amount suggested in the Durenburger proposal. In addition, since 1972, approximately $140 million (state and federal sources) have been spent in Idaho on municipal facilities, including treatment plants, collectors, and interceptors. A commitment to clean water nationwide warrants similar appropriations to the programs designed to reduce nonpoint source pollution.

As mentioned above, Federal appropriations for nonpoint source pollution control should be made in the form of grants to states. This applies to the provision of technical and support assistance, as well as to BMP funding. Funding from the state level, rather than the national, will be the most effective and efficient means of solving the country's nonpoint source pollution problems. Fewer dollars are lost in the administrative maze and more dollars are available to install BMP's with this kind of arrangement.

Evaluation - A crucial part of a nonpoint source program is its evaluation. Those involved in the program need to have an effective means of determining program success in meeting clean water goals; they also need to report their findings to Congress and to the citizens providing tax dollars for the program. Idaho's agricultural program has a built-in method of annual evalautions, with an intensive evaluation after five years of program implementation. It is highly recommended that a federal nonpoint source program require a report to Congress five years after program start-up and that the states be allowed, through their EPA approved plans, to determine the nature and extent of ongoing program evaluations. Water quality monitoring, of course, needs to be a part of the evaluation, as does assessment of management agencies. Funding of both these forms of evaluation should be provided at an adequate level. Again, this money should be disbursed at the state level. (Appendix C is a rating sheet used to evaluate project proposals in Idaho.)

In assessing progress made by states in a national nonpoint source program, it will be important for Congress to remember that states are at different points in their planning efforts. Some states will need more time than others to get programs in place. Approval by EPA of state plans will be Congress' assurance that workable programs are ready for implementation.

Determining Success Through Farmer Participation

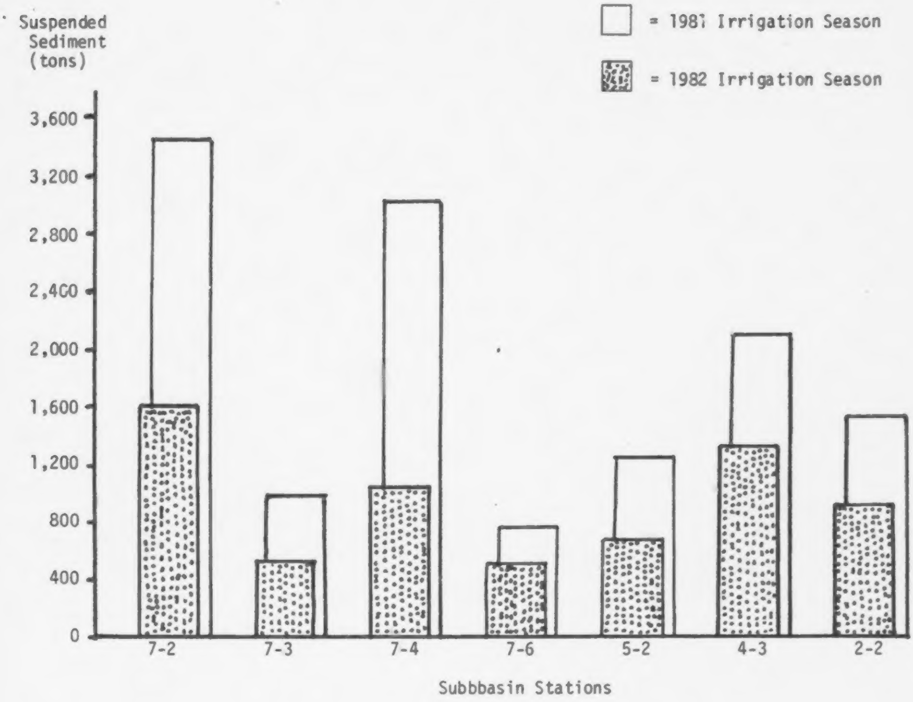
It is very difficult to evaluate impacts of BMP installation without extensive water quality monitoring. Because the State of Idaho is severely limited in its monitoring resources, another method of determining project success was selected. Following the Rural Clean Water Program, the Division and Commission are requiring that an adequate level of participation be attained in a project area in order for the project to be considered successful. This adequate level of participation involves having 75% of the critical acreage in a project area under contract to install and maintain BMP's within five years of project start-up.

In the projects in place in Idaho, this level is being achieved. One project, the Hangman Creek project in the nationally known Palouse area of northern Idaho, has been in operation only since December 1981, but already has contracts on all the required critical acreage. Another, the Willow Creek project in southeastern Idaho (which has also been targeted nationally as a serious erosion area), has been in operation only six months, but already has 50% of the needed critical land under contract.

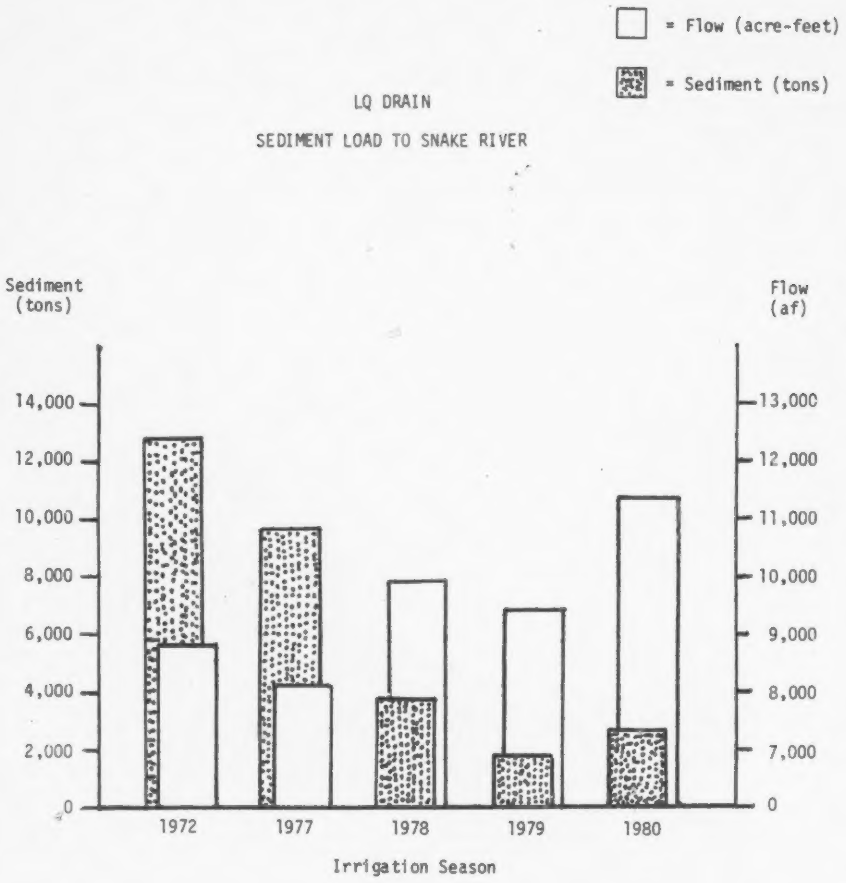
Other projects are reaching their scheduled goals. This is particularly impressive when one realizes the economic hardships that have befallen farmers in the last several years. In spite of the financial difficulties they are confronting, farmers are willing to enter into long-term contracts to improve water quality.

ROCK CREEK

SEDIMENT LOADS INTO ROCK CREEK



The Rock Creek Rural Clean Water Project was funded in 1980. In addition to BMP installation, comprehensive monitoring was funded with RCWP moneys. The project involves 45,000 acres of irrigated cropland, with approximately 26,100 acres having critical erosion. The graph above shows sediment loadings following 2 years of project implementation. BMP installation has been concentrated in subbasin 7, but has occurred in the other subbasins as well. Reductions in sediment loads have been substantial following BMP installation.



LQ DRAIN

SEDIMENT LOAD TO SNAKE RIVER

The LQ Drain Project was a 208 funded project to demonstrate BMP effectiveness on irrigated cropland. A total of $39,000 of BMP implementation funds was obtained from 1978 to 1980. BMP's were installed on 23 of the 25 farms in the project area, involving nearly all of the 2,300 acres in the LQ Drain watershed. The graph above shows sediment reductions resulting from BMP installation.

RATING SHEET
AGRICULTURAL GRANTS PRIORITY RATING

Applicant________________________Stream Segment________________________________

I. PUBLIC HEALTH EMERGENCY: Public health emergency as determined by Board of Health and Welfare action. No further rating necessary if this action is taken. ______(500).

I.________(500)

II. WATER QUALITY

______A. Significance of agricultural pollution in relation to other sources of pollution in the stream segment:
High______(50)
Med______(30)
Low______(10)

______B. Ranking of stream on Department's stream segment priority list:
High______(50)
Med______(30)
Low______(10)

______C. Agricultural pollution affects water quality of the stream segment in the following degree:

	NA	Low	Med.	High
Suspended sediment	____(0)	____(2)	____(10)	____(20)
Nutrients	____(0)	____(2)	____(10)	____(20)
Aesthetics	____(0)	____(2)	____(10)	____(20)
Coliform	____(0)	____(2)	____(10)	____(20)
Toxicity	____(0)	____(2)	____(10)	____(20)

______D. Agricultural pollution endangers the present uses of the stream segment to the following degree:

	NA	Low	Med.	High
Domestic water supply	____(0)	____(2)	____(5)	____(10)
Contact recreation	____(0)	____(2)	____(5)	____(10)
Fish/aquatic life	____(0)	____(2)	____(5)	____(10)
Ag water supply	____(0)	____(1)	____(3)	____(5)
Indust. water supply	____(0)	____(1)	____(3)	____(5)
Noncontact recreation	____(0)	____(1)	____(3)	____(5)
Aesthetics	____(0)	____(1)	____(3)	____(5)

______E. Implementation of the project will reduce agricultural pollution in the stream segment to allow uses to the following degree:

	NA	Low	Med.	High
Domestic water supply	____(0)	____(2)	____(5)	____(10)
Contact recreation	____(0)	____(2)	____(5)	____(10)
Fish/aquatic life	____(0)	____(2)	____(5)	____(10)
Ag water supply	____(0)	____(1)	____(3)	____(5)
Indust. water supply	____(0)	____(1)	____(3)	____(5)
Noncontact recreation	____(0)	____(1)	____(3)	____(5)
Aesthetics	____(0)	____(1)	____(3)	____(5)

______F. Existing population affected by improvement of the stream segment:
More than 12,500________(25)
Between 3,500-12,500__________(15)
Less than 3,500__________(5)

______G. Elimination or substantial reduction of agricultural pollution will affect water quality of the stream segment's receiving waters to the following degree:
High________(25)
Med________(15)
Low________(5)

II.________(30-350)

III. ADMINISTRATION

______A. Type of project: Primarily land treatment_____(25)***Primarily structural_____(10).

______B. Arrangements for project administration rank as follows:
High________(50)
Med________(25)
Low________(10)

______C. Other cost-share technical assistance, information/education, & administration funds in the project area. The district has:
An approved project providing these funds from other sources________(50)
Written assurance that other funds will be redirected______________(25)
No written assurance that other funds will be redirected___________(10)

III.__________(30-125)

__________ TOTAL

national
association
of regional
councils

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RICHARD C. HARTMAN, Executive Director

STATEMENT OF

AUSTAN S. LIBRACH

Director

Department of Environmental Programs

Metropolitan Washington Council of Governments

ON BEHALF OF THE
NATIONAL ASSOCIATION OF REGIONAL COUNCILS

BEFORE THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ON

NONPOINT WATER POLLUTION MANAGEMENT

July 19, 1983
Washington, D.C.

Mr. Chairman, I am Austan S. Librach, Director, Department of Environmental Programs of the Metropolitan Washington Council of Governments. I appreciate the committee giving me this opportunity to testify on amendments to the Clean Water Act dealing with nonpoint source pollution.

Regional councils are areawide organizations of general purpose local governments encompassing a total regional community. Their primary purposes are to increase communication, cooperative decision-making and coordination among local governments, and to develop policies and programs to meet mutual problems. Regional councils have been established to deal with areawide problems such as environmental quality, housing, community and economic development, transportation and public safety. Regional councils exist today in all the nation's major metropolitan areas, including the 37 interstate ones. The National Association of Regional Councils represents over 350 regional agencies in both rural and metropolitan areas throughout the United States. Most of the designated 208 areawide water quality management planning organizations are members of NARC.

NARC strongly supports the efforts of this committee to address the problem of nonpoint source pollution. We are especially appreciative of Senator Chafee's and Senator Durenberger's leadership on this issue. The impact of nonpoint source pollution is too great to ignore any longer.

When the Clean Water Act was passed by Congress in 1972, the majority of water pollution control experience was with industrial and municipal point source problems. Our understanding of nonpoint source pollution was limited and early attempts to quantify the problem presented a global, almost all pervasive problem. However, through state and areawide nonpoint source efforts under the section 208 and other programs, water quality managers have increased their understanding of the magnitude of the problem and have identified major categories and approximate sizes of nonpoint source loadings in most states. Using techniques developed in the 208, National Urban Runoff and other programs, areawide water quality managers are now able to more realistically identify those cases where nonpoint source pollution is having a significant effect on water quality and propose workable solutions.

From a national perspective, the 1982 state water quality assessments (305(b)) show that in one-fifth of the states, nonpoint source pollution is now the most important cause of water degradation in those waters not meeting uses. Agricultural nonpoint source pollution is the major source of nutrients in U.S. lakes with euthrophication problems. EPA reports that of those states (20) that have quantified their progress towards meeting the 1983 Clean Water Act goals, three-quarters (15) list nonpoint pollution as a significant source in their remaining problem waters. From my own experience centering on the Potomac and the Chesapeake Bay, we know that approximately 67 percent of the total nitrogen load and 39 percent of the phosphorus delivered to the Bay originates from nonpoint sources.

The Clean Water Act establishes a focus and rational decision-making process for the consideration of nonpoint source issues. States and local governments through their regional councils develop water quality management plans which describe both point and nonpoint sources of pollution, assist state and local officials in development of pollution control programs and provide a framework for managing water quality information on a continuing basis. Regional councils have been intimately involved in this process under the section 208 and 205(j) water quality management planning programs. Through EPA's farsighted sponsorship of the National Urban Runoff Program (NURP), regional councils (many of which were demonstration participants) have verified best management practices (BMP) and gained valuable operation experience.

In carrying out their responsibilities under the Clean Water Act, regional councils have developed water quality management plans, technical and administrative skills (that include the ability to identify and quantify nonpoint source problems and work within management systems that will implement best management practices) and management systems that are responsible for implementing plan recommendations. They have served as clearinghouses and coordinators for all (or a variety of) water related activities within their regions. Councils serve as key links in the nonpoint source management networks that include state water pollution control agencies, local governments, soil conservation districts, university technicians, U.S. EPA, USDA and other government and private agencies.

More than anything the identification and solution of nonpoint source problems is an intergovernmental process. Most best management practices involve land use regulation. They cannot be carried out without the active support and cooperation of local government which has traditionally held this responsibility. Regional councils have had much success in mobilizing local governments and resources to address the nonpoint source problem. They have been able to link water quality concerns with traditional local interests like stormwater control, zoning and municipal development. Regional councils have assisted their member local governments in drafting preventative ordinances and effectively involved affected community groups in the development of nonpoint management programs.

In the Washington, D.C. metropolitan area, areawide water resource planning has been partially funded for the last three years by local contributions to a special "Regional Fund". The Fund was instituted in 1980 by local governments represented on the Washington Metropolitan Water Resources Planning Board and is organized around a budget allocation formula which assesses each member government a proportional share of the planning budget adopted annually by the Board. The formula sets each local government's contribution according to its proportional share of the total metropolitan population. The four most populous counties in the region together contribute approximately 80 percent of the annual Regional Fund request.

The Fund supports four general work elements in the annual water resource work program developed by the region's Water Board. These are:

1. Resource Analysis - evaluation of environmental impacts associated with regional and local decisions and practices;

2. Trend Analysis and Policy Development - developing regionally consistent projections and reports on resource trends and needs to aid local and regional policy-makers.

3. Policy Implementation - technical assistance to specific public works facility planning and construction studies; and

4. Coordination of Resource Monitoring - direct field data collection and liaison services to coordinate regional water quality monitoring.

In the last three years, the Fund's support to the total areawide water resources planning budget has increased from about 15 percent in FY '82, to about 46 percent of the total budget in FY '84.

The Regional Fund was conceived by area local officials to maintain a viable regional water resource planning program in the face of cutbacks in EPA funding for these programs. It also reflects the growing interest of Washington area local officials in redirecting the areawide planning program to meet the needs of local planning programs and treatment facility operation and management decisions.

While appropriate consideration of abatement and control of pollution from nonpoint sources throughout the water quality management process is required by the Clean Water Act and existing EPA regulations, NARC feels nonpoint source problems have not received the attention they deserve. This has occurred for a number of reasons.

EPA has not placed enough emphasis on nonpoint source pollution as a problem of national concern. While it is understandable that the agency would try to concentrate its efforts on the more obvious point sources in the early years of the clean water program, there has not been a strong institutional focus of nonpoint issues within EPA. Termination of funding for areawide managment planning under section 208 has, in NARC's view, further accentuated the perception that nonpoint source problems were not considered a high priority by EPA.

Most states have downplayed the nonpoint source problem since no money is available under the construction grants program to address it and they know they still have to manage the point source problem anyway. The definition of nonpoint source problems is an exacting science and many states have choosen to focus on point sources where the funding (construction grants) and implementation program (NPDES) is well defined. This can be illustrated by an analysis of grants made under the recently enacted section 205(j) water quality management planning program. NARC, in an informal survey, found that most of the funding was being used to support state level construction grant activities. Even in those cases where funds have been passed through to areawide water quality management agencies the focus of much of the work program is on activities that support construction grants. EPA did not make any discernable effort to direct at least a portion of these funds to nonpoint source activities.

Finally, funding for implementation of nonpoint source control programs has fallen largely to local governments. In this period of difficult fiscal constraints, local officials must weigh the benefits of nonpoint management programs against the benefits of all other services they must provide. It is difficult to justify initiating or maintaining a nonpoint management program when local officials cannot make a compensating reduction in their expenditures for treatment facilities or operations. The Clean Water Act presently does not allow any reduction in pollutant loadings caused by implementation of nonpoint source management practices to be credited toward meeting point source loading requirements. The lack of such incentives weighs the decision-making process toward initiation of construction grant type solutions where assistance is available.

In order for nonpoint source problems to be solved, NARC believes a number of steps should be taken. EPA must give higher priority to nonpoint sources problems and urge the states and local governments to do the same. Recently, NARC participated in a meeting convened by Acting Administrator for Water, Rebecca Hanmer to discuss how EPA can improve its effectiveness in this area. This is a good start and NARC is currently putting together a list of suggested changes that EPA could make in its regulations and policies to give greater emphasis to nonpoint source issues. Further, we must continue to identify and refine our understanding of nonpoint source problems, including a re-examination of data and recommendations developed in 208 plans in light of findings from the National Urban Runoff, Great Lakes International Surveillance Plan, Chesapeake Bay, Rural Clean Water and Model Implementation programs.

Nonpoint source problems tend to be site specific in terms of the types of pollutants and best management practices that are most effective. These can best be determined at the local level through existing areawide water quality management agencies. NARC does not believe massive new nonpoint source assessments must be made but there is a need to initiate or continue "implementation planning" which will give life to adopted water quality management plans.

Implementation planning would be characterized by the following activities:

1) Assumes the problem has been identified.
2) Assumes the BMP(s) have been identified.
3) Identifies the agency (ies) proposed to be responsible for implementing control measures.
4) Identifies all legislation and rules which affect agencies activities as well as those that are related to the pollution problem and BMPs.
5) Examines current agency practices which are or may be related to BMP implementation.
6) Identifies benefits (water quality and others) which will accrue to the community if BMP is implemented.
7) Identifies incremental costs to the agency, to the private sector, to consumers, to the public for various levels of implementation.
8) Examines and identifies potential revenue sources to defray incremental costs.
9) Describes and encourages needed changes in agency practices for BMP implementation.
10) Identifies and encourages needed changes in legislation and rules.
11) Suggests funding mechanism.

12) Works with affected public officials, agency personnel and the public throughout the process.

13) Fully documents all data, findings and recommendations.

14) Institutes and maintains education program.

Much of this activity relates to the intergovernmental process, I referred to earlier. Recent evaluations of the Model Implementation Program noted that future nonpoint source programs should provide sufficient opportunities for implementation planning and mechanisms must be established to transfer state of the art technology to projects and ensure that it is appropriately utilized. Finally, NARC believes federal and state funds should be made available to supplement local resources.

NARC supports the general thrust of the Durenberger amendment. However, we recommend several changes that we feel will assure better implementation of the nonpoint management program. NARC is concerned about the length of time given to states to implement an NPS program. While nine months is too short, four years may be too long and provide opportunities for unreasonable delay. We think the problem is urgent enough that states should be required to start implementation within two years. NARC also believes that states and localities need more positive incentives to address nonpoint source problems.

We recognize that current federal budget realities will not permit an authorization larger than the one in this bill. However, all incentives need not be monetary. As I mentioned previously, a major assist would be to allow any reduction in pollutant loadings through the use of nonpoint management practices to be credited toward meeting point source loading requirements. NARC feels such an incentive is applicable in many areas and could save expenditures under the construction grants program. The Durenberger amendment places significant reliance on the imposition of sanctions to achieve compliance. However, our experience with the clean air program shows their limitations and the threat of sanctions could broaden opposition to a nonpoint source management program.

A necessary prerequisite to NARC's incentive proposal is the establishment of a monitoring system under the state's implementation plan that is capable of measuring the reduction of pollutant loadings resulting from nonpoint source management practices. NARC is confident that such monitoring systems are technically feasible and reliable. Further, we would strengthen provisions in the Durenberger amendment calling for participation of areawide water quality management agencies in developing and implementing the nonpoint management program by adding the phrase, "to the maximum degree practical". Regional councils participating in the section 208, NURP and section 205(j) programs have a high degree of expertise about the water quality problems in their regions and it should be utilized. The nonpoint management program must be a cooperative process, each level of government has a vital role to play.

NARC would also modify the provision in the Durenberger amendment calling for the Administrator to impose a management program if a state fails to submit one. We are not sure that EPA has the staff available to implement this provision and even if it does, recent Supreme Court decisions would not require the state to accept responsibility for operation of the program. NARC proposes to allow an adjacent state to petition the EPA Administrator to make a determination whether the failure to develop and implement a nonpoint source management program had an adverse impact on the petitioning state's efforts to attain national water quality goals. If the determination is affirmative, the Administrator could order the offending state to develop and implement a nonpoint source management program. Failure to comply would allow the petitioning state to bring a civil action. We feel this proposal leaves the responsibility where it belongs, at the state level, and provides an opportunity for states to negotiate their differences.

We have attached a copy of our proposals to this testimony. NARC feels the enactment of a national nonpoint source management program would be a positive step in addressing this important water quality issue. We urge the committee to include such a provision in the final version of S. 431. NARC appreciates the opportunity to testify before this distinguished committee and I will be pleased to try and answer any questions that you may have.

Thank you.

SEC. II. (a) Title ___ of the Clean Water Act is amended by adding at the end thereof the following new section:

NONPOINT SOURCE POLLUTION MANAGEMENT PROGRAM

SEC. ___. (a) On the application of the Governor, the Administrator is authorized to make a grant for the purpose of implementing a management program to control nonpoint sources of pollution to improve water quality in the State for which the Administrator, after consultation with appropriate Federal agencies, has approved a program under subsection (b) of this section. Payments for such purpose may be made to the States as hereinafter provided in subsections (d) and (e), subject to such terms and conditions as the Administrator considers appropriate.

(b)(1) A State or combination of States shall be eligible for assistance under this section by submitting to the Administrator, within 24 months after the date of enactment of the Clean Water Act Amendments of 1983, a nonpoint source management program which shall, on the basis of available information, including but not limited to information available under sections 208, 303(e), 304(f), or 305(b) of this Act:

(A) identify those waters within its boundaries which without additional action to control nonpoint sources of pollution cannot reasonably be expected to attain or maintain State water quality standards approved by the Administrator under the provisions of section 303(e) of the Act or that water quality which shall assure protection of public health, public water supples, agricultural and industrial uses, and the protection and propagation of a balanced indigenous population of snelfish, fish, wildlife and plants and allow recretional activities in and on the water;

(B) designate categories or subcategories of nonpoint sources of pollutants that contribute significant pollutant loadings to the waters identified under subsection (b) (1) (A) of this section;

(C) identify management practices and measures which will be undertaken (including land use requriements) to control each category or subcategory of such nonpoint sources and to reduce to the greatest extent practicable pollutant loadings resulting from such nonpoint sources; and

(D) include a proposed implementation plan which shall include:

(i) a description of proposed management practices and measures which the State or combination of States commits to implement within a specified time period to reduce pollutant loadings resulting from nonpoint sources;

(ii) the estimated cost of the management practices and measures proposed to be implemented during the period of any grant made under this section;

(iii) an identification of methods (including, as appropriate, programs for enforcement, technical assistance, and cost-sharing) for implementing those proposed management practices and measures scheduled for implementation during the period of the grant; and

(iv) a statement from the attorney general of such State or States (or the attorney for those State water pollution control agencies which have independent legal counsel) that the laws of such State or States, as the case may be, provide adequate authority to carry out the described program scheduled for implementation during the grant period annd a commitment to seek the necessary legal authority for proposed management practices and measures scheduled for implementation in the future;

(v) a monitoring system that is capable of measuring the reduction of pollutant loadings resulting from the nonpoint source management practices and measures implemented by the State.

(E) in identifying management practices and measures that involve land use and developmental policies and practices and in implementing the implementation plan described in subparagraph (D) of this paragraph a State, to the maximum degree practical, shall provide for the participation of local governments and regional organizations participating in water quality management planning under sections 205(j) or 208 of the Act.

(2) Each program submitted in accordance with paragraph (1) of this subsection shall be deemed to have been approved by the Administrator unless, within 6 months after the date of receipt of such program, he determines after notice and opportunity for public comment and consultation with appropriate Federal, State, regional agencies and local governments and other interested persons that adequate authority does not exist to carry out the described program or that the program is otherwise insufficient to substantially control nonpoint sources of pollution and to reduce pollutant loadings resulting from such nonpoint sources. If the Administrator so determines, he shall notify the State of any revisions or modifications necessary to obtain approval. The State shall thereupon have an additional 3 months to submit its revised implementation plan.

(c) Any reduction in pollutant loadings caused by the implementation of a nonpoint source management program under this section and identified by a State through its monitoring activities in subsection (b)(D)(v) which are verified by the Administrator may be credited by such State toward meeting point source loading requirements for those waters where the nonpoint source measures and practices are implemented.

(d) Upon the petition of an adjacent downstream State which is implementing a nonpoint source management program approved by the Administrator under this section, he shall determine whether the failure of the upstream State to develop and implement a nonpoint source program under this section, at least at the level and magnitude of the petitioning State, is adversely affecting the petitioners attaining national water quality goals. If there is a finding of adverse affect, the Administrator shall order such State to develop and implement a nonpoint source plan that is compatible with the petitioning State. Failure to take steps to comply with such order within 180 days and upon the verification of this fact by the Administrator, the petitioning State may bring a civil action for such violation of the Administrator's order. If it is determined that the State has willfully violated such an order, such State shall be subject to a civil penalty not to exceed $10,000 per day during such violation. An action under this subsection shall be brought in the Circuit Court of Appeals of the United States for the District of Columbia.

(e)(1) Upon approval of a nonpoint source management program submitted in accordance with subsection (b)(1) of this section, the Administrator shall finance the costs of implementing such program up to the amount apportioned under subsection (e)(2) except that Federal grants under this section shall not exceed 50 per centum of the costs of implementing the program in any fiscal year and shall be made on condition that non-Federal sources provide the remainder of the costs of implementing the program during the period of such grant.

(2) Administrative costs in the form of salaries, overhead or indirect costs for services provided and charged against programs or projects supported by funds made available under this section shall not exceed 10 per centum of the annual Federal grant made to a State under this section.

(e)(1) For the purpose of this section there is authorized to be appropriated, to remain available until expended, $150,000,000 per fiscal year for the fiscal years ending September 30, 1983, September 30, 1984, September 30, 1985, September 30, 1986, and September 30, 1987.

(2) Sums available for the purpose of this section shall be apportioned among the States by the Administrator, whose determination shall be final, on the basis of the ratio which the total of shoreline miles of streams, reservoirs, lakes, bays and estuaries of each State bears to the total of

shoreline miles so identified by the several States. Such apportionments shall be adjusted equitably so that no less one-half of 1 per centum of the total amount apportioned shall be allocated to each State.

(f) Section 304 of the Clean Water Act is amended by adding at the end thereof the following new subsection:

(1) For the purpose of assisting States in carrying out programs under section ___ of this Act, the Administrator shall establish and maintain in the Environmental Protection Agency an Office, Division of Branch of Nonpoint Source Pollution Management Programs to:

(1) receive and process nonpoint source management programs under section ___ of this Act; and

(2) collect and make available, through publications and other appropriate means, (A) the results of monitoring activities under section (d)(3) of this Act, and (B) other information pertaining to management practices and measures which can be undertaken (including land use requirements) to control categories of nonpoint sources of pollution and to reduce pollutant loadings resulting from such nonpoint sources, including but not limited to (i) information concerning the costs and relative efficiencies of best managment practices and best available techniques for reducing nonpoint source pollution; and (ii) available data concerning the relationship between water quality and implementation of various management practices and measures to control nonpoint sources of pollution.

NATIONAL
ASSOCIATION
OF REGIONAL
COUNCILS

1700 K St., N.W., Washington, D.C. 20006 • Area Code (202) 457-0710

[illegible] Executive Director

July 22, 1983

Hon. George J. Mitchell
U.S. Senate
SR-366 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Mitchell:

This letter in response to the following questions posed to witnesses at yesterday's hearing on the nonpoint source management program before the Senate Environment and Public Works Committee.

1) Should this program be mandatory?
Yes, NARC feels the impact of nonpoint source pollution is so widespread that every state should have a management program. I think all witnesses at the hearing felt that nonpoint source management is a major issue in water pollution control.

2) Should there be deadlines? If so, when?
Yes, NARC believes that states should be implementing a program covering the whole state within three years. We suggest following the precedent of the Coastal Zone Management Act (PL 92-583) which recognized that some states could move more quickly than others. It allowed planning in the first year and encouraged partial implementation within the second. We feel that many substate regions would be in a position to implement within the second year of the program since they have already developed viable water quality management plans. If so, they should move ahead, while the state completes its plan for the balance of the state.

3) Should there be cross-compliance requirements?
No, NARC feels this would be an unwieldy weapon at best and is subject to administrative abuse. Our recent experience with the imposition of sanctions under the clean air act illustrates this point. NARC believes that there are positive non-monetary incentives available to assure compliance. In our testimony, we proposed that the Clean Water Act be modified to allow any reduction in pollutant loadings through the use of non-point management practices to be credited toward meeting point source loading requirements. Presently, the lack of such incentives weighs the decision-making process toward initiation of construction grant type solutions where assistance is available. From the

experience of regional councils across the country, NARC is confident that we have the technical ability to establish monitoring/modelling programs that are capable of both predicting and measuring the reduction of pollutant loadings from receiving water resulting from nonpoint source management practices.

4) Should provisions be retained relating to compliance of upstream states? Yes. However, NARC would modify the provision in the Durenberger amendment calling for the Administrator to impose a management program if a state fails to submit one. We are not sure that EPA has the staff available to implement this provision and even if it does, a Supreme Court decision (Brown vs. Costle) concerning the 1970 Clean Air Act amendments held that a state could not be compelled to operate an air quality implementation program developed by EPA for the state. NARC proposes to allow an adjacent state to petition the EPA Administrator to make a determination whether the failure to develop and implement a nonpoint source management program had an adverse impact on the petitioning state's efforts to attain national water quality goals. If the determination is affirmative, the Administrator could order the offending state to develop and implement a compatible nonpoint source management program. Failure to comply would allow the petitioning state to bring a civil action. We feel this proposal leaves the responsibility where it belongs, at the state level, and provides an opportunity for states to negotiate their differences.

I would also like to take this opportunity to urge the adoption of provisions which require the states to provide for the participation of local governments and regional organizations "to the maximum degree practical" in the development and implementation of a nonpoint source management program. This should include the pass-through of funds to carry out these purposes. Most best-management practices involve land-use regulation. They cannot be carried out without the active support and cooperation of local government which has traditionally held this responsibility. Regional councils have had great success in mobilizing local governments and resources to address the nonpoint source problem. The high degree of expertise they have built up through the 208 and National Urban Runoff Programs should be utilized to the fullest.

Again, thank you for the opportunity to testify. If I can answer any questions, please call me at 202-457-0710.

Sincerely,

George Gaberlavage

George Gaberlavage
Federal Liaison

GG/el

Copies: Austan Librach, Metropolitan Washington Council of Governments
Ron Outon, Senate Environment and Public Works Committee
John Walker, Executive Director, Greater Portland Council of Governments

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STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION BEFORE THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE WITH REGARD TO THE CLEAN WATER ACT

Presented by
Bruce R. Hawley, Assistant Director, Washington Office

July 19, 1983

American Farm Bureau Federation
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STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION BEFORE THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE WITH REGARD TO THE CLEAN WATER ACT

Presented by
Bruce R. Hawley, Assistant Director, Washington Office

July 19, 1983

The American Farm Bureau Federation is a general farm organization in 48 states and Puerto Rico. Farm Bureau membership exceeds 3.2 million member families representing more than half the production of every major commodity produced in the United States. We have been actively involved in water quality issues for many years. We appreciate the Committee's willingness to provide this opportunity for agricultural concerns to be considered.

The relationship between agricultural run-off and water quality has been studied extensively since the 1972 Clean Water Act amendments. Although quantification of agriculture's contribution has been difficult, it is generally acknowledged that farm run-off is a substantial contributor to the pollution burden of our nation's waters.

During the past decade, major progress has been made toward abating agriculturally related pollution discharge. "Concentrated animal facilities" have been regulated under the National Pollutant Discharge Elimination System (NPDES), substantially reducing the presence of livestock wastes in water.

Soil conservation measures costing more than $3.5 billion have been installed on farms and ranches. Many of the conservation practices, aimed at keeping soil in place, have greatly reduced the quantity of soil particles and the attached pesticides and fertilizers entering the nation's waters. Special projects around the Great Lakes have identified specific problems and implemented corrective measures.

Recent shifts in tillage technology have produced dramatic results. From 1980 to 1982, an additional 4.4 million acres of cropland were "no-tilled"... planted into row crops with no tillage at all. An additional 19 million acres were brought under other conservation tillage techniques or practices intended to increase surface cover during planting thus reducing erosion/run-off problems.

Today, over 25 percent (or over 100 million acres) of all cropland in the U.S. is under conservation tillage. This is a four-fold increase over the past decade. More importantly, the highest levels of participation are in the areas of historically high erosion--areas that have been high contributors to water quality problems. In the corn belt states, where 36 percent of the land has been identified as highly erodible, 52 percent of the crop land is now "conservation-tilled." This progress has been aided by demonstration projects conducted at the local level.

Despite recent progress, we believe more can be done without imposing intolerable burdens on an already severely stressed agriculture.

During consideration and development of the 208(b)(2)(F) portion of "Areawide Waste Treatment Management" plans, most states identified a comprehensive list of "Best Management Practices" (BMP) intended to "...control to the extent feasible..." non-point pollution from agricultural sources. Some of these practices have been implemented on many farms. Of the wide range of measures identified, some are effective, some are cost-effective, some are practical, and some, are all of the above.

We recommend that the lead agency responsible for water quality in each state be encouraged to review the state 208 plans' "BMPs", and take into account any new information that might be available, including results of the recently completed RCA study conducted by USDA. Based on the results of the review, and appropriate public input, the states would identify those practices most cost-effective and most likely to be accepted by the impacted land owners and apply to EPA for cost-share funds for demonstration projects. Demonstration projects would provide farmers and ranchers an opportunity to gain first hand knowledge of the methods of run-off reduction, potential impacts on yields, costs of production, special skills required, likely management problems, and future profitability of the operation.

Where demonstration projects have been used as educational tools in the cornbelt, conservation tillage has been well accepted (particularly so where hands-on experience with equipment has been provided). We believe that this trend could be continued in other regions and that farmers and ranchers would adopt other good BMPs if appropriate demonstration programs could be developed.

We suggest the committee recommend $25-$35 million for each of the next four years for demonstration projects. Funding at this level would be sufficient to operate demonstration projects in most states giving emphasis to identified high priority areas of the state. Since the program would be for a specified time, states would be able to plan the program operation with certainty. We further recommend that the legislation require the funds be used only for demonstration projects. Extensive area wide planning has already been done. USDA just completed a comprehensive, state-by-state assessment of soil conservation needs and capabilities. We believe it's time to get some action on the land. States have performed the studies and planning necessary to get things moving. In most states, plans are being implemented today. If further "dusting off" of 208 plans is necessary to begin an effective demonstration program, let the states do this first, as a statement of their commitment to action.

Much has been done to address water quality problems, and much remains to be done. Agriculture is willing to participate in a reasonable, cost-effective run-off control program. It is time to move ahead with the knowledge gathered over the past decade. The program outlined above will, in our opinion, lead to significant additional progress in controlling agricultural run-off.

We would be happy to respond to any questions.

American Farm Bureau Federation

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July 22, 1983

Honorable George Mitchell
United States Senate
Washington, D.C. 20510

Dear Senator Mitchell:

During the Senate Environment and Public Works Committee hearings on July 19 with regard to the Clean Water Act, you asked each of us on the panel to respond to a set of questions.

1. Should non-point programs be mandatory? In terms of state implementation and individual implementation of non-point programs, we think not. The structure of the Clean Water Act has been largely a decentralized act with emphasis on state and local action. As was testified, there has been substantial progress within recent years towards non-point program implementation. Admittedly, it has not been started as soon as we would like, nor is it progressing as fast as some might hope. Still, there is substantial momentum building and to change the rules of game by requiring states to do specific things at this time will, we think, polarize the situation rather than encourage progress. Likewise, with relation to individual farmer participation, all farmers on all farms do not need to do things differently than they are currently being done. To require a program that is applicable to all in order to catch the few, again is going to raise alot of objections and polarization to the program. More to the point, we do not anticipate sufficient funds being available for all that do need to do things. We do not envision the federal or state government willing to put up the magnitude of cost/share dollars necessary to provide assistance for implementation of management practices. To impose a requirement absent sufficient funds in the hands of the farmers or cost/share funds to assist farmers will clearly lead to a situation of non-compliance and imposition of penalties, rather than leading to broad based progress with water quality goals.

2. Should there be a deadline? We presume that the deadline question is in the context of the mandatory implemention of a program. We have already indicated opposition to a mandatory program.

3. We think the sooner the better, but with encouragement, not regulation.

4. Cross compliance. As we indicated in our testimony, we oppose cross compliance because it won't work. Substantially less than half the farmers in the country receive a check from the government for commodity supports. Those are the only farmers that the government could hold an effective stick over. There is no indication that they are the ones who are most in need of implementing a run-off control program. Likewise, Farmers Home Administration only accounts for 12 percent of the farm credit. Again, there is no indication that those are the people that leverage must be exerted on. The cross compliance program would become very uneven in its application. In your state of Maine, very few farmers receive direct commodity supports. The sole exception is dairy where the price of the commodity is supported, but the farmer does not receive a check. A cross compliance program would have more authority over a state where growers predominately produce cotton, for instance, where a much higher share of farmers participate in commodity support programs. We do not perceive it is your committee's intent to pass legislation that will punish other states but not your own.

5. Downstream state authority to force upstream state action. We recommend against this provision. Non-point control is obviously something we want to move ahead on. Creating a mechanism that encourages finger pointing is not, in our opinion, the most constructive way to move ahead with this problem. Surely, every downstream state is going to immediately point to their upstream neighbors and say such problems as we have are their fault. This "accuse thy neighbor" policy, to be resolved in the courts, diverts our attention from the necessity of focusing on "our own" problems within "our own" state and within the limits of "our own" resources.

If we can provide further information or respond to further questions, we would be happy to do so.

Sincerely,

Bruce Hawley

Bruce Hawley
Assistant Director
Washington Office

cc: Honorable Stafford

TESTIMONY OF LEE E. KOPPELMAN

Distinguished Senators,

My name is Lee Koppelman. I am the Executive Director of the Long Island Regional Planning Board and have served in that position since 1965. My doctorate is in regional planning and public administration; my dissertation subject was on coastal zone management.

I am pleased to testify in favor of the proposed amendment to the Clean Water Act providing for a non-point source pollution management program. In my judgement, this amendment is not only desirable but absolutely necessary if the National purpose of achieving swimmable and drinkable waters is ever to be attained in America. I served as the project director of the Long Island 208 Study, referred to in earlier testimony by Dr. Harris of Rutger's University. That study clearly identified non-point source pollution as the major contaminant of surface, fresh, and marine waters. I may point out that it also is a sizable contributor to groundwater pollution as well. As a result of our successful 208 Study, we received an unsolicited grant of $2.4 million from the Environmental Protection Administration to conduct one of nineteen test studies on national urban runoff, to be carried out in various communities across the country. Draft copies of our final report have been submitted to this Committee for your consideration. This report clearly documents the range of options available and useful--from best management practices to a variety of structural solutions. The costs inherent in each class of non-point source cleanup control devices increase as one progresses from a management practice to a structural solution. A key point to observe, however, is that the costs for non-point source cleanup are modest in contrast to the billions of dollars of federal funds that have already been invested for point source control. While the cost of non-point source pollution mitigation is modest, the potential returns are extremely high. For example, we estimate that we would be able to control non-point source pollution of the Great South Bay system of southern Long Island at a cost of approximately $50 million. By so doing, we would then be in a position to reopen more than 20% of the total clam beds that are currently closed, thereby enabling Long Island to develop in excess of a $200 million shellfish industry. This indeed is most cost effective.

Within our 208 Study, we did recommend that the Culver Amendment, which made provision for non-point source federal support in rural communities, be extended to cover suburban and urban areas. In our judgement, there was a far greater impact on water quality in the more developed areas than found in the rural reaches. This amendment before your Committee precisely addresses this need.

I, therefore, wish to indicate my complete support for the philosophy, intent, and direction taken by Senator Durenberger and colleagues in preparing this amendment. In particular, I consider the timetable and mandatory features contained in the amendment to be extremely positive features.

If progress is to be made in this vital area, it must become clear to one and all that the federal purpose is indeed sincere. A timetable helps to establish the critical nature of the problems we must all deal with. Conversely, the absence of any timetable would be a clear signal that the federal intent is not to be taken seriously. On the issue of mandatory responsibility, here again the same thinking would apply. I fully recognize that mandatory requirements are extremely difficult to implement as judged from past performance. Nevertheless, it is the very least that can be done to indicate the seriousness of purpose. There have been many claims for voluntary compliance. Voluntary compliance has been raised in regard to this amendment as it has been raised in the debates over every other piece of legislation affecting the environment for the past decade and a half. In my judgement, voluntary compliance is a euphemism for non-compliance. In my experience as a member of the National Shoreline Erosion Advisory Panel for the Army Corps of Engineers, we soon learned that a voluntary program could not achieve a National purpose. For example, in the State of Texas where we examined severe subsidence and erosion problems, amounting to thousands of acres of ranch lands eroding into the Gulf of Mexico, the owners of such land felt that the value of the real estate losses was less than the cost of erosion control. Therefore, they did the sensible thing; namely, they ignored the erosion. How much more so when the question of voluntarism depends on the cleanup of a marine environment that may, in fact, be producing no economic benefit directly to the adjacent land owners. I, therefore, can understand some of the reservations raised by representatives from the Texas farming community. In my judgement, this problem can be resolved with a little wisdom eminating from the Committee. If the mandatory requirements apply to public entities, e.g., states and their various jurisdictions, rather than falling directly on private land owners, I believe it would be possible to achieve a higher degree of compliance and support with the objectives of the overall program.

I also applaud the inclusion of a federal consistency clause within this amendment. It is a close takeoff from the federal consistency clause contained within the Coastal Zone Management Act of 1972, and is an important beneficial feature. All too often in the past, efforts raised by state and local governments were thwarted by actions undertaken by an individual bureau, agency, or department of the federal government in carrying out a policy running directly counter to a local objective. By placing this consistency clause in your amendment, you are in fact, protecting the states and their jurisdictions in their effort to achieve non-point source control.

There are several minor points of revision that I would like to recommend, with the full understanding that my commitment to your effort stands, notwithstanding this minor set of observations.

I believe Section D should have stronger wording vis-a-vis regional governments. In my eight year experience with EPA and the State of New York in the conduct of 208 and other related studies, I found that our ability to deal directly with the federal government produced far greater returns than when we subsequently had to deal through the State of New York. More than three years ago when we finished our 208 Study, we identified the need for additional research, planning, and administrative recommendations in the handling, treatment, storage, and final disposition of hazardous materials. At approximately the same time, EPA entered into an agreement with the State of New York to the effect that they would no longer deal directly with counties or regional entities, but would marshall thei efforts through the State Department of Environmental Conservation. The State indicated that they would be happy to do the hazardous materials study. We concurred since we had no other choice, and since our prime concern was to have the study done rather than make an issue of 'pride of authorship'. Three years have now gone by and these studies, although vital to the well-being of Long Island as well as to the State, have never been initiated. EPA has provided 205j funds specifically for studies of this nature. Because of budgetary crunches in Albany, administrative decisions were made to siphon this money, to the extent possible, for the retention of jobs in Albany rather than the conduct of the specific studies for which the funds have been delegated. We currently are in the midst of a dispute over this issue. A second reason for changing the language is that there may be regional areas or other sub-sections of a state that would be vitally concerned with supporting the program for non-point source pollution, and would in fact undertake such work, even if the state itself were to decide to bypass the program.

Sub-Section (d)(1) provides for a federal contribution of 50% with the remaining 50% to be funded by the state. In my judgement this is not a sufficient catalyst. I believe that the funding should be at least 75%. I am not suggesting that the total umbrella amount of $150 million be changed. I am suggesting that if the states are to be enticed into the program, they would need a more sizable federal catalyst. The initial funding for the 208 program, until January 1, 1975, provided 100% funding. This enabled Long Island to immediately enter into the program. We would, of course, have entered into the program at a subsequent 75% funding level, but it would have taken us a lot longer to put our own act together in order to participate. Since it is possible that a 25% match can be made up in terms of in-kind services, I believe this would be a happier solution for states and local governments, particularly in these days when there have been severe cutbacks in a variety of federal programs, with the resultant impact placed on state and local budget responsibilities.

The last point refers to Section (b)(1)A - surface waters. I would like to suggest that the language include "surface and ground waters..." As I mentioned at the beginning of my brief statement, non-point source pollution, while the major contaminator of surface and marine waters, is also a serious contaminator of potable ground drinking waters. Thus, non-point source pollution should be able to address this set of issues as well.

I want to commend the Senate Committee for its excellent work on a most vital environmental problem. I also wish to acknowledge my sincere appreciation for being allowed to present a few thoughts on the subject.

STATEMENT OF THE

NATIONAL ASSOCIATION OF HOME BUILDERS

before

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

on

NON-POINT SOURCE POLLUTION

July 19, 1983

Mr. Chairman and members of the Committee:

My name is Harry Pryde. I am a homebuilder and land developer from Seattle, Washington, and I am testifying today as President of the National Association of Home Builders. Our 111,000 members include thousands of land developers and homebuilders whose businesses would be affected by enactment of a non-point source pollution control program. We appreciate the opportunity to address the Committee on the question of non-point source pollution.

In the past few months the homebuilding industry has begun to recover from its worst recession since World War II. If interest rates remain relatively constant or decline further, we will be able to continue to lead this nation's economic recovery. The cost of financing homes has made us doubly concerned with the affordability of the homes we build.

Housing affordability is one factor that prompts our interest in non-point source pollution controls. Our members have considerable experience using these controls, which I would like to explain briefly before commenting on the proposals of Senators Chafee and Durenberger and of the Administration.

Non-Point Source Pollution and Homebuilding

Our members prepare land for construction and we build houses and other structures. Our members build everything from one single family detached house to apartments to subdivisions. We construct office complexes, shopping centers, schools, industrial facilities and many other structures. The size of our members' projects ranges from additions onto houses to entire planned communities. Our land developer members prepare land for construction by paving roads, installing sewers and utilities, landscaping, and subdividing parcels into buildable lots.

During development and construction, we uncover the land temporarily. Erosion from construction sites can introduce sediment into waterways. Local governments often require builders and developers to reduce the amount and rate of sediment runoff in order to protect waterways. Many builders voluntarily reduce erosion in order to preserve valuable topsoil or trees that contribute to the site's value. The most common practices include:

1. The maintenance of vegetative cover. The smallest area needed for construction is cleared, trees retained, and the topsoil conserved by stockpiling, mulching, reseeding and sodding.
2. The use of hay bales, silt fence and brush barriers to trap sediment on site.
3. Sediment basins that catch runoff to allow sediment to settle out and release the treated runoff.
4. Earthen diversion berms with pipes or chutes to direct runoff to basins. These are especially useful on steep slopes.

Builders also take measures to reduce runoff from finished sites. Natural or structural measures may be used, with widely varying impacts on costs. Flexible zoning ordinances that allow cluster housing or planned unit developments can increase open space, thereby increasing rainwater infiltration and improving stormwater management. Subdivision ordinances can actually reduce development costs while reducing non-point source pollution. Narrower streets, fewer sidewalks and porous pavement reduce impervious surfaces and, as a result, the volume of runoff.

Unfortunately, most control measures impose additional costs which are passed on to the consumer. So they must be chosen to fit the site and to keep costs at a minimum. The typical control measures on finished sites include:

1. Vegetative cover to slow the velocity of stormwater runoff and to filter particles from the runoff.
2. Infiltration systems that direct the flow of surface runoff into the ground. Proper soil conditions are necessary. Runoff storage facilities are often necessary when infiltration rates

are slow. These systems include dutch drains, which are gravel filled ditches that trap runoff and hold it while it seeps into the ground. Also used are grassed swales, which are depressions in the earth used to slow and hold runoff, and porous pavement, used to absorb street runoff.

3. Surface retention that uses permanent impoundments to hold stormwater on a long-term basis.
4. Surface detention ponds that reduce the rate of runoff by temporarily storing stormwater.

Detention measures in particular require maintenance, so the costs and responsibility of long term unkeep should be considered when selecting such measures. Actual costs are site specific, so cost figures are difficult to compare. However, in every case the costs should be weighed carefully against the effectiveness of the measures being considered.

NAHB Actions

NAHB has for years provided technical advice to our members on land development, including erosion, sediment control, and stormwater management. In 1978 we co-authored a booklet with the U.S. Environmental Protection Agency on non-point source controls in the homebuilding industry. Later, in 1979, we launched a major educational program among our members designed to inform them about the imapct of water quality laws on the homebuiding industry. Through speeches, publications, small seminars and technical advice, we educated our members on non-point source pollution laws and control practices.

We continue to provide advice to our state home builder associations.

Most recently, the Kansas Home Builders Association has completed two years of work with the Kansas Department of Health and Environment on a study of erosion control measures. At the request of the Kansas Department of Health and Environment, a Kansas homebuilder chaired the study's task force. The final report concluded, as had the 208 plan, that construction is not a significant non-point source pollution problem in Kansas. In this and other ways our members are working with state and local governments to ensure that regulations are written only where necessary and only in the most sensible manner possible.

Chafee-Durenberger Proposal

The proposal for a non-point source pollution program advanced by Senators Chafee and Durenberger raises questions about the proper roles of federal, state, and local governments. Non-point source pollution controls affect the development and use of land. The federal government should limit itself to setting broad policy on land use matters and on environmental matters that directly affect land use. State governments should coordinate policies regionally, and local governments should make those land use decisions needed to carry out national policies.

The Chafee-Durenberger proposal presents a national policy on the cleanup of non-point source pollution. It also provides for state plans to address the pollution problems. We agree with those provisions. However, the proposal goes a step further and mandates that EPA is to approve state plans and will write plans for states that do not do their own. These provisions carry the federal government beyond a policy making role and inject it into decisions that the states are better able to handle. We believe that the proposal should be amended to state that EPA will simply certify that the state has submitted a plan that contains the elements required in the proposal. EPA should not pass on the merits of the state plan, nor should EPA attempt to write a plan for a state that chooses not to participate.

The states should have maximum flexibility to set up regulatory or non-regulatory programs to address the non-point source pollution problems. The Chafee-Durenberger proposal does that. Local governments should then be able to make the decisions as to which measures are appropriate in their areas. Local governments are in the best position to cooperate with developers, farmers, and others to match non-point source controls to the multitude of situations they encounter.

We would like to know how the Chafee-Durenberger proposal relates to existing non-point source control programs. There is a trend toward state and local action to control erosion and to manage stormwater. Twenty-one states and the District of Columbia have enacted programs to control erosion and sedimentation. These programs differ, but the majority contain provisions for enforcing soil conservation requirements on building sites. Agricultural activities are often exempt from the regulatory provisions of these programs, though agricultural soil erosion and related non-point source pollutants have been addressed by the states since the 1930's via soil conservation districts. Five more states have developed or are developing stormwater management programs. These programs are being designed to address water quality as well as flood prevention.

States that identify non-point sources of pollution as a problem are capable of effectively addressing it. Maryland, for example, enacted the first state erosion and sediment control law in 1970. The law has been strictly enforced by local governments in the state.

Building permits are not issued until a detailed erosion and sediment control plan is approved by the soil conservation district. If the permittee fails to install and maintain required conservation practices properly, all construction activities on the project can be stopped. A U.S. Geological Survey showed that the Maryland program has resulted in a 60% to 80% reduction in sediment yield from construction sites.

If the Committee decides to proceed with a program that includes state plans, we recommend that the states be allowed to use their existing programs as part or all of their plans to address non-point source pollution. That would avoid duplication and would keep any new scheme from conflicting with successful state programs.

We are pleased that the Chafee-Durenberger proposal contemplates the use of existing water quality management (208) plans. Those plans provide the most authoritative information available in most areas and should be the basis for action on non-point source pollution. Where better data is available, it should be used as well. The 9 month planning period allowed in the proposal indicates that the proponents expect states to use existing data. The time period is far too short for new studies of the problems.

The proposal authorizes $150 million annually for five years. From the persepctive of Washington that does not sound like much money. Yet it adds to the federal deficit at a time when Congress and the Administration should be curtailing spending to attempt to reduce the federal deficit. We oppose an authorization of this size.

The funding scheme set up by the Chafee-Durenberger proposal would create state allocation problems. The funding available to any one state will most likely be insufficient to help pay for measures on all potential projects. The state will have to set up a priority list to divide monies among stream segments, sources of pollutants, and types of pollutants. Such a priority list has the potential to be complicated and arbitrary. Some sources of pollutants will receive assistance and some will not. To the extent that the latter want the monies, they will feel they have been treated unfairly. If the funds are distributed among competitors, such as land developers, then anyone that does not receive funds will be to that extent at a competitive disadvantage vis a vis those that do receive funds. A further problem is that those pollutant sources that expect to receive federal assistance will have an incentive to defer expenditures that they would otherwise have made on their own. This is not likely to be a problem for development projects.

This scheme has the potential to undermine state programs that presently require strictly private financing of non-point source controls. In all candor I would estimate that many of our members would prefer to know what must be done, pay for it, and pass the cost to the homebuyer, rather than go through the red tape to get federal funds administered by a state government. Yet the availablity of federal funds will induce some to seek them rather than commit their own funds.

A final question about the funding scheme is who pays for the non-federal share? The proposal calls for a 50-50 match. States will be reluctant to pay for half of the costs, given their budgetary constraints. Local governments are in similar shape. Even if they could be prevailed upon to authorize funds, their distribution in conjunction with the distribution of federal funds would further complicate the program and make it less efficient. If the private sector is expected to match the federal share, then the program could work as a grant program with the state evaluating the cost estimates of controls submitted by the private source. The source of the non-federal share should be signified in the legislation.

We are pleased that Senator Durenberger has indicated that the proposal calls for average rather than best management practices. That shows a sensitivity to the costs of the measures that we believe should be amplified somewhat. Non-point source controls can increase or decrease land development costs. Structural controls tend to be the most expensive, while the reduction of impervious surfaces tend to lower costs. Costs of management practices should be identified by states as a significant consideration. They affect the affordability of the houses we build. Their consideration reiterates the importance of site specific flexibility in designing non-point source controls for land development projects. Costs of management practices should be identified in state plans as significant considerations.

The Chafee-Durenberger proposal calls for consistency of federal actions with the state plans after 4 years. While this appears to be a sensible effort to coordinate governmental actions, it raises the prospect of a cross-compliance mechanism that uses one program to force action in another. It may not be unreasonable for housing projects assisted by the Depatment of Housing and Urban Development to use sediment control measures identified by the state plan. It would be unacceptable to withhold the HUD assistance on the basis on the non-point source plan's identification of a stream segment as being polluted by runoff. We would oppose cross-compliance sanctions used to force implementation of non-point source programs.

We would also caution that seemingly reasonable requirements of one federal program that are imposed on other federal programs can ultimately create red tape that reduces the utility of the federal programs. Many of our members will not participate in HUD housing programs because those programs are burdened by regulations.

On balance we oppose the Chafee-Durenberger proposal as it stands. With modifications along the lines I have suggested, we might be able to support it. There is another option that we hope the Committee will consider seriously.

Administration Proposal

The Administration has outlined a non-point source pollution program that places greater emphasis on state and local governmental responsibility. It requires state plans that can utilize existing 208 plans. It does not place the federal government in the undesirable position of writing a state plan in place of the state. It establishes a program that will demonstrate the feasibility of federal/non-federal cost sharing to implement management practices. A demonstration is preferable to a nationwide program that has insufficient funds and a potentially complicated funding distribution system.

Once state programs are approved, the Administration's proposal would require consistency with them by federally funded construction projects. That is a reasonable measure that would be easier to administer than the consistency provision in the Chafee-Durenberger proposal. The Administration's proposal also costs considerably less than does the alternative, which is preferable in terms of the federal budget.

We endorse the Administration's proposal because it draws an appropriate balance between federal and non-federal roles. It is a realistic effort to promote non-point source pollution control, which respects the state and local lead in this area of environmental protection.

Conclusion

While progress has been made in controlling non-point source pollution, we realize that more work is needed. State and local governments should continue to have chief responsibility for the development and implementation of non-point source controls. They should have complete flexibility in developing their programs, so they can devise solutions that are most appropriate for the conditions they face.

The federal government's role should be that of promoting non-point source programs. It can do so through demonstrations, financial assistance, education and other means of encouragement. We strongly urge the Committee to focus on positive incentives rather than regulatory programs or sanctions because we believe that a positive approach will be the best in the long run to reduce non-point source pollution.

I appreciate the opportunity to present our views. I will be pleased to answer questions.

National Association of Home Builders
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Harry Pryde
1983 President

August 12, 1983

The Honorable Robert T. Stafford
Chairman
Committee on Environment and
Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Stafford:

I am submitting the following answers in response to questions you posed on behalf of Senator Simpson. I understand that these responses will be placed in the Record of the July 19, 1983 Committee hearings on the proposed Nonpoint Source Management Program.

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenberger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

The scope of a nonpoint source control program should be defined within the context of broad federal policy, coordinated by states, and carried out by local governments. The federal government should encourage nonpoint source controls through limited grants to state and local governments. The program should be a positive incentive program to induce state and local government action. These latter governments should have the option of choosing regulatory or non-regulatory programs, as appropriate for the problems that they encounter.

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

The Environmental Protection Agency's role in nonpoint source pollution control should be four-part:

a) Review state programs and provide technical advice on how to achieve goals. EPA should not have authority to approve or reject state programs.

Housing—Shelter for the People/Jobs for the Economy

b) Provide limited financial support to states to help implement programs.

c) Serve as a clearinghouse for information transfer.

d) Assess the progress of nonpoint source control efforts and report to Congress. EPA should not be given responsibility for implementation of a nonpoint source control program. Resource, personnel and technical limitations make such an approach infeasible.

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

Placing a nonpoint source control program under one federal agency would create jurisdictional problems between the agency, other federal agencies, and state and local governments. The Soil Conservation Service, state and local governments have existing programs that should be amplified or used as models where effective programs do not exist. More nonpoint source pollutant reduction can be obtained by increasing the efforts of existing agencies. There is no need to interfere with their efforts or create another federal bureaucracy where we have agencies addressing the problem.

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

We do not have the expertise to respond to the question about the cost of management practices for farmers and ranchers. I would note, however, that the costs of management practices undertaken in the development process are ultimately borne by homebuyers. Given the rising cost of housing, these costs must be taken quite seriously.

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

A nonpoint source control program, similar to Senator Durenberger's, would result in some form of de facto land use planning. Senator Durenberger's proposal calls for state programs that include an identification of "management practices and measures which can be undertaken (including land use requirements)..." In developing areas these requirements can take the form of density controls, such as large lot zoning of prohibitions on development in areas where sedimentation harms water supplies. Additionally, the federal consistency requirement could lead to decisions on urban infrastructure that could in fact modify land uses.

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

We are concerned that a downstream state could enforce its regulations on an upstream state. Regulations should be formulated as close to the source of pollution as possible. Neither a downstream state nor the federal government should force specific regulatory actions on a state. The state or local government is in the best position to define and address its nonpoint source problems.

We appreciate the opportunity to present our views. For further information on our position, please contact NAHB Senior Staff Vice President Robert Bannister at 822-0470.

Sincerely,

Harry Pryde

Harry Pryde
President

HP:dg

NATIONAL WILDLIFE FEDERATION
1412 Sixteenth Street, N.W., Washington, D.C. 20036 202—797-6800

STATEMENT OF
DR. JAY D. HAIR, EXECUTIVE VICE PRESIDENT
NATIONAL WILDLIFE FEDERATION
BEFORE THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
ON NONPOINT POLLUTION
July 19, 1983

48th ANNUAL MEETING MARCH 15-18, 1984 Omni International Hotel, Atlanta, Georgia
100% reclaimed paper

Mr. Chairman, I am Dr. Jay D. Hair, Executive Vice President of the National Wildlife Federation. I appreciate this opportunity to discuss a major, unaddressed water pollution problem--nonpoint sources. The National Wildlife Federation is the world's largest conservation-education organization with over 4 million members and supporters and 51 affiliated statewide and territorial organizations. Many of our members and affiliates have participated in the EPA 208 Programs which developed plans and management practices for nonpoint pollution. Our efforts continue today as we seek from this Congress an implementation and control program for nonpoint sources which now contribute so much of the pollution entering our waterways. On behalf of the American Clean Water Association, Clean Water Action Project, Environmental Policy Center, Friends of the Earth, Izaak Walton League of America, League of Women Voters, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, Sierra Club, and Trout Unlimited, I want to thank Senators Stafford, Chafee and Durenberger for their leadership in proposing a program for the future based on the practical experiences of the recent past.

Scope of the Problem

In 1977, the General Accounting Office estimated that over half the pollution entering the nation's waterways was from nonpoint sources, and the most important of nonpoint sources were agricultural activities, urban storm water runoff, silviculture, and poorly designed and managed septic systems. Nonpoint pollution has not improved in the interim. The Council on Environmental Quality's 1979 Annual Report stated that nearly all drainage basins were affected in some part by pollution from agriculture and urban runoff. In 1982, six states reported the primary cause of water degradation for their state was nonpoint sources. This year, 15 of 20 states reporting progress towards the Clean Water Act's fishable/swimmable goal list nonpoint pollution as a significant pollutant source in their remaining problem waters. Finally, nonpoint sources are being identified as the major contributor to pollution in large water bodies such as the lower Great Lakes, Chesapeake Bay and the bays, surface water and groundwater of Long Island, NY.

Since 1974 $451 million have been spent on studies, plans, and demonstration projects. The failure in not reducing nonpoint source-related pollution has not been in the plans and projects but rather our failure to implement what we have learned. One reason for this lack of implementation is the prevailing perception that the problem of nonpoint pollution is enormous and the solution extremely difficult to devise. That perception is incorrect. If we examine two of the major sources--agriculture and urban runoff--we find that many effective techniques are already known and are being used on a small scale and that by applying these techniques to the critical areas nationwide a substantial reduction of pollution can be achieved.

Agricultural Nonpoint Pollution

Sediment is the major water pollutant from agricultural activities. Approximately 6 billion tons are lost from farm lands yearly. This soil loss seriously affects not just productivity of the land but also the quality of the waters into which most of the soil flows. Scientists estimate that 75% of the sediment entering streams, rivers and lakes comes from soil erosion on cropland. The General Accounting Office has reported that soil losses resulting from poor agricultural practices are 25% worse today than in 1934. In Illinois, about 2 bushels of soil wash from cropland for each bushel of corn produced in the state. The Illinois Natural History Survey has found that the backwater lakes along the Illinois River are half filled with mud because of siltation from neighboring farms produced in the last 15 years. However, it is important to realize that less than 3% of the land contributes over 1/3 of the total annual siltation loss. Controlling erosion from a surprisingly small number of areas can result in a majority of the pollutant reduction needed to protect water quality. In most instances, 208 plans identified familiar soil and water conservation measures as the best management practices for controlling erosion and runoff--such practices as contour farming, chisel plowing, buffer strips and crop rotation. In fact, USDA studies have shown that minimum till or no-till practices can control runoff while maintaining or increasing crop yields.

The 208 programs have also led a number of states to adopt both voluntary and mandatory control programs for agricultural nonpoint pollution. Although the implementation of many of these programs has been disappointing, the existence of such programs has caused the states to face farm generated water quality problems explicitly and to build planning and administrative programs to deal with them. Under 208, the states had to establish an identification and priority system and give evidence of legal authority to act when it was deemed necessary. By working with Soil Conservation Districts and Resource Conservation Districts, farm organizations and farmers have begun to recognize the need to act.

In addition, the incentive of Rural Clean Waters Program funds has induced serious action in 21 areas. The Rural Clean Water Program of 1977 specifically authorized the Department of Agriculture to sign contracts with landusers in selected high priority areas. Under these contracts the land user receives special technical assistance and cost sharing to improve water quality by reducing sediment and other agricultural pollution. Other federal programs assisting farmers with nonpoint pollution cleanup include the Model Implementation Program and the Clean Lakes Program. The Model Implementation Program, a cooperative effort between EPA and the Department of Agriculture, tested best management practices in seven agricultural areas. Although results were mixed because of the short duration of the projects, the information gathered can be put to practical and beneficial use under the Chafee-Durenberger proposal. The Clean Lakes Program has resulted in some outstanding examples of cleanup of agricultural runoff. On the Cobbossee and Annabessacook watersheds in Maine, farmers have built animal waste storage facilities to store animal wastes over the winter rather than spreading them on top of the snow. This is resulting in substantial improvements in the water quality of the lakes.

Taken together these programs--208, Model Implementation, Rural Clean Waters, Clean Lakes, Soil Conservation Service--have resulted in plans and management practices developed on a small scale. The Chafee-Durenberger proposal will establish the modest requirements needed to have a nationwide program with management practices implemented in all the areas where nonpoint pollution is a critical problem.

Urban Runoff

The other major source of nonpoint pollution is urban runoff. Pollution in urban runoff includes air pollutants that have settled in streets, erosion from construction sites, salt and other de-icing chemicals, litter and animal refuse. Ninety-five percent of the bacterial loading to the bays of Long Island comes from urban runoff and has resulted in the closing of many shellfish areas. Most of the lakes selected for study under the Clean Lakes Program are urban parks adversely affected by urban runoff. Similar to agricultural nonpoint pollution, most of the urban runoff pollution is coming from limited areas, the industrialized and highly urbanized sections of a city, and can be controlled through management practices targetted at those areas. Such practices include more frequent street cleanings, use of porous pavement, and sedimentation and catchment basins to reduce the amount of dirt and soil carried in runoff. The National Urban Runoff Program is studying 28 metropolitan regions. Baltimore has been identified as having the most contaminated runoff of the 28. Yet it is only a few areas in Baltimore that contribute most of the pollution--heavily industrialized and urbanized sections. Solutions that have been identified in Baltimore include more frequent street cleaning, and paving streets and parking lots with a coarser type of asphalt that lets water soak through into the earth.

The Chafee-Durenberger Proposal

The proposal before this Committee will put to use the information and solutions gathered from these on-the-ground programs. It is a modest start towards a program that in the future must help the nation achieve water quality standards.

Five elements of this proposal -- (1) state identification of problem water bodies, (2) state and local identification of practical, average management practices, (3) implementation of practices by a date certain, (4) federal consistency with state programs, and (5) federal implementation as a last resort--are all essential components of the proposal before the Committee. Without all five elements, the nation could go another 10 years without making substantial progress towards the 1983 goals.

I would like to explain why each of the steps in the proposal is a reasonable expectation that builds on programs already in place.

(1) The Chafee-Durenberger proposal is founded upon the record that has already been developed at the state and local level under 208 and other programs. States are advised, although not required, to draw upon the information that they submitted to EPA under 208 and their biennial reports and upon any other readily available information to target streams where the problems of nonpoint source pollution are the most serious and where the contributors of that pollution can most effectively use management practices to reduce nonpoint source pollutant loadings.

(2) The Chafee-Durenberger proposal provides for development and implementation of nonpoint source pollution strategies at the state and local level with the involvement of such agencies as soil conservation districts. This is appropriate and necessary because the rate of nonpoint pollution depends on soil types and condition, weather and climate, and typography and hydrology--all of which vary dramatically throughout the country. By giving states and localities the responsibility and the financial incentive for developing practical management techniques, it also avoids being burdensome or intrusive. By requiring that management practices be set at average levels which can be readily achieved, only "bad" managers will have to change their practices in order to comply with state programs.

(3) The proposal requires that states implement management practices within four years after enactment. This provides adequate time for practices to be put in place while not delaying excessively the cleanup of water pollution. A date certain gives individual sources the certainty they need to plan for ultimate implementation. Only a date certain will assure fairness among sources and among states. It will give EPA the necessary baseline from which to measure the effectiveness of the program and report back to Congress. Finally, a date certain for compliance is essential if the nation is not to repeat the experience of waiting decades to achieve clean water.

(4) The Chafee-Durenberger proposal addresses the serious problem of transboundary nonpoint source pollution by inviting adjacent states to use EPA as a neutral arbitrator in these situations. States may petition EPA to see if adjustments should be made to an upstream state's nonpoint source pollution program to alleviate pollution flowing into the downstream state's waters. This is a logical role for EPA to play. EPA will have before it the nonpoint source management programs from adjacent states and will be able to examine the sources of pollution and the potential solutions. Until there is some mechanism in place which will bring adjacent states together to manage transboundary nonpoint source pollution, much of what this program could achieve may not be realized.

(5) The Chafee-Durenberger proposal prevents the Federal Government from pursuing financial assistance policies and programs which are

inconsistent or interfere with state nonpoint source management programs. From the federal perspective, there is an inherent logic in the Federal Government's not subsidizing practices and measures, on the one hand, that it is spending money to control, on the other. Federal consistency, gives meaning to the state-led approach of the program.

(6) The proposal provides monetary incentives to states and sources without linking the programs to the money. For many sources and states, abating nonpoint pollution is its own financial incentive and reward. For some, money will make the transition to better management easier and faster. However, federal funds are clearly not going to be sufficient to pay for all the nonpoint pollution control measures which must be implemented. It is important that the program go forward despite this fact.

(7) Finally, the Federal Government cannot be completely absent from the design and implementation of this program. EPA must function in a review and approval capacity to be sure that federal funds are used in a manner which will most effectively address the problems created by nonpoint source pollution. In addition, EPA is uniquely situated to transfer and exchange between the states information and technology on effective measures for reducing nonpoint source pollutant loadings. Only if a state elects not to run its own program would EPA step in to administer a control program using the state's 208 plan and other locally generated information. EPA

must have the authority to act if the carrots of federal money and local control are not enough. Without back-up federal implementation, there is no assurance that adequate programs will be implemented.

The costs to society of letting nonpoint pollution continue unchecked are high. The nation is losing productivity from its land, killing and smothering fish and wetlands, contaminating fish and shellfish so they are inedible, and spending over $300 million a year dredging the resultant silt from our rivers, lakes, and harbors. I urge you to adopt the Chafee-Durenberger nonpoint program. It builds on the knowledge and experience that has been gained over the last ten years. It contains modest and reasonable requirements for federal consistency with state plans, a date for implementation of management practices and EPA oversight and implementation as a last resort. This Committee can make the most meaningful improvement in the Clean Water Act for this reauthorization period by adopting a a control program for nonpoint pollution.

Attachment A

EXPENDITURES BY THE ARMY CORPS OF ENGINEERS FOR MAINTENANCE DREDGING OVER THE PAST SIX YEARS
(in millions)

1983 estimate:	$392
1982 actual	310
1981 actual	344
1980 actual	305
1979 actual	241
1978 actual	214
SIX YEAR TOTAL:	$1.806 billion

Source: Army Corps of Engineers, Dredging Division

Attachment B

SECTION 208 PROGRAMS

State	Federal Grants[1] 1974 to 1981	Designated Management Agency(s) for Agriculture[2]
Alabama	$ 5,517,000	Water Improvement Commission
Alaska	3,276,000	Department of Environmental Conservation
Arizona	4,727,000	Department of Land; Water Commission
Arkansas	3,809,000	Soil & Water Conservation Commission; Conservation Districts
California	27,219,000	Water Resources Board and 9 Regional Boards
Colorado	8,116,000	Soil Conservation Board; Counties
Connecticut	3,234,000	Council on Soil and Water Conservation
Delaware	4,369,000	Dept. of Natural Resources and Environmental Control; Dept. of Agriculture, Soil Conservation Division
Florida	19,694,000	Soil & Water Conservation Districts
Georgia	5,001,000	Dept. of Natural Resources, Environmental Protection Division
Hawaii	673,000	Soil & Water Conservation Districts
Idaho	5,792,000	Soil Conservation Commission and Districts
Illinois	16,492,000	Dept. of Agriculture; Soil & Water Conservation Districts
Indiana	7,545,000	Soil & Water Conservation Commission
Iowa	5,072,000	Department of Soil Conservation
Kansas	3,144,000	Department of Health and Environment
Kentucky	2,818,000	Cabinet for Natural Resources and Environmental Protection, Division of Conservation; Conservation Districts
Louisiana	4,029,000	Department of Natural Resources, Water Pollution Division
Maine	4,068,000	Department of Environmental Protection
Maryland	5,477,000	Water Resources Administration; Soil Conservation Commission; Soil Conservation Districts
Massachusetts	9,523,000	Department of Environmental Quality Engineering
Michigan	18,453,000	Soil Conservation Districts
Minnesota	4,234,000	Soil & Water Conservation Board and Districts
Mississippi	3,054,000	Soil & Water Conservation Commission
Missouri	8,449,000	Dept. of Natural Resources, Soil & Water Conservation Program
Montana	4,632,000	Conservation Districts
Nebraska	2,840,000	Department of Environmental Conservation
Nevada	3,546,000	Soil Conservation Districts
New Hampshire	2,091,000	Conservation Committee
New Jersey	11,787,000	Soil Conservation Commission
New Mexico	2,720,000	Soil & Water Conservation Districts
New York	28,391,000	Soil & Conservation Committee; Soil Conservation Districts
North Carolina	8,619,000	Soil & Water Conservation Commission
North Dakota	1,813,000	Department of Health
Ohio	16,162,000	Dept. of Natural Resources, Division of Soil & Water; Soil and Water Conservation Districts
Oklahoma	6,821,000	Conservation Commission
Oregon	7,867,000	

(cont')

SECTION 208 PROGRAMS (CONT')

State	Federal Grants 1974 to 1981	Designated Management Agency(s) for Agriculture
Pennsylvania	$11,028,000	Department of Environmental Resources
Rhode Island	2,505,000	Soil Conservation Districts
South Carolina	8,252,000	Land Resources Conservation Commission
South Dakota	3,785,000	Dept. of Natural Resources; Dept. of Agriculture
Tennessee	8,422,000	Dept. of Public Health, Division of Water Quality Control
Texas	20,123,000	Soil & Water Conservation Board
Utah	5,744,000	Soil Conservation Districts
Vermont	1,281,000	Agency of Environmental Conservation
Virginia	8,853,000	Soil and Water Conservation Commission
Washington	8,990,000	Soil Conservation Districts
West Virginia	2,398,000	Dept. of Natural Resources, Division of Water Resources
Wisconsin	10,305,000	Soil & Water Conservation Districts; Areawide Planning Agency
Wyoming	2,298,000	Conservation Commission
	Total: $375,058,000	

Summary of Designated Management Agencies:

State Soil Conservation Agencies: 18
Conservation Districts: 18
Department of Agriculture: 4
Pollution Control Agencies: 16
Department of Natural Resources: 7
Counties: 1

CURRENT STATUS OF 208 INITIAL PLANS (as of July 1, 1983)[3]

Total: 225
Certified: 219
Approved: 215

Sources: [1]"Section 208 Grant Awards", Environmental Protection Agency.

[2]"Implementation Status of State 208 Agricultural Programs", E.P.A., Office of Water and Waste Management, September 1980.

[3]"Status of 208 Initial Plans"; Environmental Protection Agency, July 1, 1982. (With update contacts).

Attachment C

MODEL IMPLEMENTATION PROGRAM

Projects and Funding

Project	ACP Funding*
INDIANA: Indiana Heartland	$ 1,112,722
NEBRASKA: Maple Creek Watershed	758,104
NEW YORK: West Branch, Delaware River	915,000
OKLAHOMA: Little Washita Watershed	507,580
SO. CAROLINA: Broadway Lake	622,835
SO. DAKOTA: Lake Herman	148,000
WASHINGTON: Sulpher Creek Watershed	745,555
TOTAL:	$ 4,809,796
Additional funding (monitoring) from EPA:	$ 1,500,000
TOTAL M.I.P.	$ 6,309,796

* Agricultural Conservation Program (USDA)

RURAL CLEAN WATER PROGRAM

Projects and Funding

Project	Federal Funding
ALABAMA: Lake Tholocco	$ 1,547,020
DELAWARE: New Castle	934,974
FLORIDA: Taylor Creek	1,338,100
IDAHO: Rock Creek	2,391,177
ILLINOIS: Highland-Silver Lake	1,432,279
IOWA: Prairie Rose Lake	596,000
KANSAS: Upper Wakarusa	2,687,904
LOUISIANA: Bayou Bonne Idee	4,784,000
MARYLAND: Double Pipe Creek	3,633,850
MASSACHUSETTS: Westport River	721,491
MICHIGAN: Saline Valley	2,368,650
MINNESOTA: Garvin Brook	1,758,198
NEBRASKA: Long Pine Creek	1,871,775
OREGON: Tillamook Bay	1,998,436
PENNSYLVANIA: Conestoga Headwaters	1,930,513
SOUTH DAKOTA: Oakwood - Lake Poinsett	1,055,548
TENNESSEE/KENTUCKY: Reelfoot Lake	3,286,170
UTAH: Snake Creek	300,556
VERMONT: St. Alban's Bay	1,447,283
VIRGINIA: Nansemond-Chuckatuck	1,886,995
WISCONSIN: Lower Manitowoc	1,659,750
TOTAL RCWP:	$ 39,630,669

Attachment D

NATIONWIDE URBAN RUNOFF PROGRAM (NURP)

State Programs

Arkansas - Little Rock
California (2) - San Francisco, Bakersfield
Colorado - Denver
Florida - Tampa
Illinois (2) - Chicago, Decatur
Maine - Portland
Maryland - Baltimore
Massachusetts - Boston
Michigan (3) - southeastern Michigan
Missouri - Kansas City
New Hampshire - Portsmouth
New York (2) - Long Island, Rochester
North Carolina - Winston-Salem
Oregon - Eugene
South Carolina - Georgetown
South Dakota - Rapid City
Tennessee - Knoxville
Texas - Austin
Utah - Salt Lake City
Vermont - Burlington
Washington - Seattle
Wisconsin - Milwaukee
District of Columbia (DC)

NURP Funding:

	$ 19 million	EPA
	5 million	US Geological Survey
	6 million	localities
Total	$ 30 million	

NATIONAL WILDLIFE FEDERATION
1412 Sixteenth Street, N.W., Washington, D.C. 20036 202—797-6800

August 16, 1983

The Honorable Robert T. Stafford
United States Senate
Washington, DC 20510

Dear Senator Stafford:

Thank you for the opportunity to testify before your committee. Below are my responses to Senator Simpson's questions.

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenberger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

If we as a nation are serious about the commitment to clean water, all of the states with significant pollution from nonpoint sources must attempt to control them. A grants program sends the signal to states and individual sources that they will be paid to solve a pollution problem affecting the public. Since 1974 the Congress and EPA have attempted to solve nonpoint pollution through grant programs. They have not been effective. Given that experience, it is important, now, for Congress to make it mandatory for a state to develop an effective program, while leaving the details of the program up to the states. Grants should be used to help states and individuals do a better job of solving nonpoint pollution problems, while not relieving them of the responsibility of cleaning up nonpoint sources.

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

EPA can best serve three functions in a control program for nonpoint pollution. First, EPA should review and approve the states' nonpoint programs to be sure that federal funds are used in a manner which will most effectively address the

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problems created by nonpoint pollution. Second, EPA is uniquely situated to act as an information exchange, transferring information and technology between the states. Third, EPA can and should act to set up a nonpoint control program if the state fails to do so. Using the state's 208 plan and information from conservation districts, EPA can identify stream segments and individual sources contributing to nonpoint pollution and can develop management practices for controlling such pollution. EPA can achieve compliance, just as the state could, by requiring federal agency assistance programs to be consistent with the EPA plan.

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

EPA has a long history of working with the Soil Conservation Service, Department of Agriculture, states, and state conservation districts on nonpoint pollution. Through cooperative agreements, EPA has been able to use other agencies' expertise and experience to address soil erosion problems which contribute to nonpoint pollution. However, EPA needs to retain ultimate responsibility for the federal interest in restoring and maintaining water quality. EPA should continue to work with other federal and state agencies where possible.

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost-prohibitive for financially strapped farmers and ranchers?

Best or "average" management practices will not be cost-prohibitive for farmers and ranchers for two reasons. First, best management practices (BMP) are those which are economically achievable. EPA defines a BMP as a practice that is determined by the state "to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources." (Emphasis added.) For example, terracing, which requires a large initial cost, could be a management practice that was not economically achievable as the "average" practice while contour plowing, costing little or nothing, could be the best management practice. Under the Chafee-Durenberger proposal, states and local conservation districts can decide what is "average" or economically achievable. In addition, "BMPs" will not be cost-prohibitive because Senator Durenberger has added an economic waiver to the proposal. The economic waiver would allow an entire category of sources, such as soybean farmers or individual sources, additional time to implement the "average" management practices, if economic conditions dictate.

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of _de facto_ land use planning?

Senator Durenberger's proposal would not result in land use planning because practices would be tailored to existing land uses rather than mandating changes in land use patterns to achieve pollution clean-up. In other words, a farmer growing wheat might be asked to use no-till farming practices but he will not be told to use the land for grazing or some other crop. Practices would be developed for whatever use was being made of the land.

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

As I interpret the upstream, downstream provision, a downstream state can petition EPA to require an upstream state to develop a nonpoint pollution control plan. An unfair situation is created when a downstream state has a water quality limited stream segment for which it has developed a nonpoint pollution control plan, but most of the runoff is coming from an upstream state which has not developed a plan. EPA should be able to require an upstream state, in such a situation, to develop and implement a plan so that the cumulative pollution in the downstream state can be cleaned up.

The National Wildlife Federation believes a mandatory program for clean-up of nonpoint pollution is essential if the nation's waters are to achieve the Congressionally-mandated goal of waters clean enough for fishing and swimming. Please let me know if we can provide additional information in helping the Committee reach a decision on this continuing water pollution problem.

Sincerely,

Jay D. Hair

JAY D. HAIR
Executive Vice President

Testimony Of

RICHARD E. GUTTING, JR.
Vice President - Government Relations
NATIONAL FISHERIES INSTITUTE

On

NON-POINT SOURCE POLLUTION

Before The

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

July 19, 1983
Washington, DC

Good Morning. I am Richard E. Gutting, Jr., Vice President of Government Relations for the National Fisheries Institute. The Institute is a national association representing more than 1,300 members which harvest, process and market fish and seafood products. I appreciate the opportunity to appear before this Committee and present our views on the need to manage non-point sources of pollution.

If you are involved with the commercial fishing industry in any fashion -- whether as a fisherman, processor, distributor, retailer, or restaurant operator -- you are concerned about the quality of the marine environment. Unlike the amount of food produced on farms and ranches which can be expanded or reduced to meet changes in consumer demands, fish are wild species with finite limits. Fish depend upon the quality of the marine environment and our industry depends on the fish.

Over 200 different commercial species of fish and shellfish are harvested each year from U.S. waters. Major species include tuna, shrimp, salmon, groundfish, clams and oysters, menhaden, crabs, scallops, and sardines. With proper management, these renewable natural resources can contribute significantly to our Nation's economic growth.

Fish supply a high-quality protein to eat, meal for animal feed and oils for a wide variety of industrial products. While total human consumption of fish is relatively small compared to the consumption of red meat and poultry in this country, it does represent a major source of protein and a very important food for virtually the entire population. In 1982, about 8.0 billion pounds of commercial fish products were consumed. Per capita consumption of fish and shellfish has been rising and is higher than that of veal, lamb and turkey combined. In terms of dietary significance, we estimate that fish accounted for about 9 to 10 percent of the meat proteins consumed in the United States in 1980. We also estimate that at least 90 percent of the population, or approximately 200 million people, are regular consumers of fish and seafood which is provided to them by the commercial fish industry. National Marine Fisheries Service statisticians estimate that these consumers are paying more than $13 billion for these products.

Fish also contribute indirectly to our food supply. About 35 to 40 percent of the tonnage produced by the commerical fish industry is used to feed animals and poultry, which in turn are consumed by humans. In 1982, the U.S. consumed about 4.0 billion pounds of fish in animal feeds, pet foods and other industrial products.

According to the National Marine Fisheries Service, the commercial fishing industry employs over 300,000 people engaged in fishing, processing, and wholesaling products. Somewhat over 114,000 vessels and boats are used. These vessels harvested over 6.3 billion pounds of fish in 1982 valued at $2.4 billion at the dock. Product is handled in over 3,500 shore establishments. To this must also be added thousands of trucking companies and other transportation organizations, as well as the retail and foodservice establishments which complete the fish and seafood distribution chain.

No single fishery typifies the industry. Instead, our supply of fish depends upon the efforts of an Alaskan native setting his gill net for salmon, a crabber running his traps in the Chesapeake Bay, a shrimper in the Gulf, a New England lobsterman pulling his pots, or a menhaden fisherman setting his purse seine off the coast of North Carolina. Fishing is conducted in rivers, lakes, estuaries, bayous, coastal waters, and thousands of miles from U.S. shores. Two-thirds of the commercial catch, however, is caught in internal and nearshore waters.

Data of the type I have cited -- that is, pounds of total production, dollar value, and so on -- are important. But it is also important to point out that commercial fishing is a unique way of life. It has much in common with sport fishing. There is a gamble of the bonanza catch and the challenge and pleasure of being at sea.

What is all this worth? As I've suggested, it depends on how you look at it. The National Marine Fisheries Service estimates that our harvesting and processing activity alone contributes $13 billion to the gross national product.

Sixty percent of the U.S. commercial harvest comes from fish and shellfish which depend on wetlands or estuaries for their survival. In the Gulf of Mexico, these species account for 90 percent of the commercial catch. These are the waters which are most vulnerable to pollution and man's activities.

Pollution can impact our industry significantly. Today, the public has widespread safety concerns with virtually all foods. Nobody wants to take a chance eating contaminated products. Unfortunately, whenever marine pollution problems come up, information and speculation tend to be presented to the public in a disjointed and exaggerated fashion so that the average person has a difficult time understanding the true significance of the situation. Often times, the consumer demand for fish plummets as a result of sensational reporting in the press. The impact of pollution on our industry, therefore, can be substantial whether or not it causes a real, or merely a perceived, impact on fish.

In recent years, substantial efforts have been made to clean up point sources of marine pollution. Extensive efforts are underway to monitor and control contaminants from outfall pipes and ocean dump sites. Recent scientific reports, however, suggest that we should also be concerned about the tremendous amount of nutrient and other materials which enter the ocean from non-point sources.

Non-point source pollution occurs when runoff carries pollutants, such as petroleum hydrocarbons and lead from parking lots, pesticides and nutrients from residential lawns or agricultural fields, pathogens from faulty septic systems, or toxic materials from industrial areas, into our rivers and coastal waters. A recent report of the National Oceanic and Atmospheric Administration (NOAA) indicated that in most regions, non-point source pollution accounts for a major portion of the contaminants that enter coastal waters.

Estuaries and adjoining coastal areas may be particularly affected. Nearly the entire United States is drained by river systems that eventually discharge into coastal waters. Depending on the pollutants and the characteristics of the river system they enter, various amounts of non-point source pollutants are ultimately discharged into coastal waters.

NOAA has estimated that water pollution from non-point sources may affect about 90% of the drainage basins in the United States and that pollution discharges from non-point sources greatly exceed the discharges from point sources.

Several marine pollutants are resistant to chemical and biological changes and thus can remain in the marine environment for years. Marine sediments become reservoirs for compounds which may be redistributed from the sediment back into the environment, either as part of a continuous recycling process or as a result of activities such as dredging. Other organic compounds are transformed into "new" chemical structures -- some of which are more toxic than the parent coumpounds -- by bacteria or other organisms or by other processes. The National Marine Fisheries Service reports that high concentrations of these chemicals have been found in sediments and aquatic animals from urban embayments and estuaries such as the New York Bight, the Los Angeles Bight, and Puget Sound.

It would appear that hundreds of synthetic chemicals are present in urban bays and estuaries of the United States. Many of these areas are vital reproductive, nursery, feeding, migratory, and residential areas for valuable fish and shellfish. The potential severity of present or future impacts of pollutants on fishery resources are not known. Pollution, however, can reduce the productivity of these resources or render them unfit for human use. Clearly, a more substantial and long-term commitment should be made to maintain and enhance the quality of our marine environment. For this reason, we support the proposal to manage non-point sources of pollution.

This concludes the written portion of my testimony. I will be more than happy to answer any questions you may have.

NATIONAL FISHERIES INSTITUTE, INC.

1101 CONNECTICUT AVENUE, N.W. ■ WASHINGTON, D.C. 20036 ■ (202) 857-1110

July 25, 1983

Mr. Ronald B. Outen
Senate Committee on Environment and
Public Works
410 Dirksen Senate Office Building
Washington, DC 20510

Dear ~~Mr. Outen~~ Ron:

We are responding to Senator Stafford's letter of July 22, 1983, regarding the proposed Nonpoint Source Management Program.

1. The Institute supports the proposal of Senator Durenberger. Past efforts to control nonpoint source pollution suggest that more than grants are needed.

2. The states should be encouraged to take the lead role in developing and implementing control programs. EPA should play an oversight and coordinating role. EPA, however, should be able to step in and play a direct role as it does under other pollution control programs, if the states fail to take effective measures.

3. Yes. "Turf" battles are inevitable. Placing the program under one agency might reduce these conflicts, but raises other difficulties. The costs outweigh the benefits.

4. No comment.

5. Yes, depending on how you define "de facto land use planning". Land use restrictions or incentives would have to be imposed over time under the proposal. These restrictions or incentives would have to be coordinated among political jurisdictions to be effective. This coordinated effort could be thought of as "de facto land use planning".

6. No. The proposal, as we understand it, would not have this effect. Downstream states would have an opportunity to raise concerns that upstream state measures were inadequate. Downstream states would not be able to impose their "solutions" upon upstream states.

Sincerely,

Richard E. Gutting, Jr.
Vice President - Government Relations

EP&W/Clean Water Nonpoint
Source Hearing questions

July 22, 1983

Mr. Richard Gutting, Jr.
Vice President of Government Relations
National Fisheries Institute
1101 Connecticut Ave., N.W.
Suite 700
Washington, D. C. 20036

Dear Mr. Gutting:

On behalf of Senator Simpson, I am submitting the following questions to you for written response. Your response will be placed in the Record of the July 19, 1983 Committee hearings on the proposed Nonpoint Source Management Program.

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenburger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

In view of the schedule for Committee markup of this provision, I would appreciate a response at the earliest possible time.

Please mail your response to Ronald B. Outen, in care of the Enviroment and Public Works Committee.

Sincerely yours,

Robert T. Stafford
Chairman

RTS/ron

DOCLBB-15

STATEMENT OF THE SPORT FISHING INSTITUTE BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS; RE: THE NEED TO CONTROL NONPOINT WATER POLLUTION SOURCES -- JULY 19, 1983

Thank you, Mr. Chairman, on behalf of the Sport Fishing Institute (SFI) for the opportunity to appear before you and the other members of the Committee to comment on the recreational fishing industry's position on the need to control nonpoint sources of water pollution. I am Gilbert C. Radonski, the Institute's Executive Vice President. The Institute is a non-profit, tax-exempt, broadly-based conservation organization, staffed entirely by fisheries scientists, devoted to the protection, enhancement, and wise utilization of America's freshwater and marine aquatic resources. Our principal objective, by means of a program of ecological research, conservation education and professional service, is to help develop and promote optimum opportunity for Americans to engage in healthful and rewarding recreational fishing. Our financial support comes from a broad range of manufacturers of fishing equipment and accessories and from many anglers and other concerned citizens.

By and large, Mr. Chairman, the Congress of the United States views recreational fishing as a frivolous activity and the industry that services the recreational fishermen as insignificant. To dispell both notions I would state for the record that in 1980 approximately 42.1 million Americans aged 16 and older fished. About 11.8 million youths aged 6-15 also fished, for a total of 53.9 million! Fishermen took 751.2 million fishing trips that accounted for 857.6 million days of fishing. On the average, fishermen took 18 fishing trips in 1980 and fished for 20 days. They spent $17.3 billion for recreational fishing. This figure, $17.3 billion in expenditures, translates into approximately 700,000 jobs (man-years labor). An additional $6 billion and 300,000 jobs can be added to those figures for commercial fishing. Food and lodging on fishing trips accounted for $3.9 billion, or 22 percent of the total. Transportation accounted for $3 billion (18 percent) and fishing equipment for $2.5 billion (14 percent). Other expenditures were licenses, dues, and subscriptions for $601 million (4 percent); rental and other fees for $528 million (3 percent); land leasing and ownership for $340 million (2 percent); and special equipment (boats, vans, etc.) used primarily for fishing for $6.4 billion (37 percent).

The figures for recreational fishing do not include the recreational value nor the value of the fish harvested by anglers (approximately equal to 50% of the domestic commercial fishing harvest).

The point to be made is that recreational fishing generates significant expenditures to the national economy.

When you invited me to testify before your Committee, Mr. Chairman, you asked me to "...state whether a national program to control nonpoint pollution sources is desirable, either to protect water quality or preserve resources." I can unequivocally state that a national nonpoint pollution source control is an area of critical concern to anglers and the industry that services them.

Public Law 92-500, the Clean Water Act, often referred to as the biggest public works project since the building of the pyramids, has consumed billions of dollars. From a fisheries viewpoint those dollars were not merely spent, but invested. There have been dramatic results in restored fisheries in all areas of the United States as a result of P.L. 92-500. But, to date the Clean Water Act has targetted on point source pollution. That is understandable; point source pollution is easily defined and identified; its effects are dramatic. Foul-smelling, discolored water with dead fish floating about is clearly polluted. In such cases, the pollutant can be seen flowing into the water. Control of such problems is a salable issue in the political arena. P.L. 92-500 is testimony to that fact.

On the other hand, nonpoint pollution results in organic loading, salinization, pesticide contamination and increased suspended solids. Such pollutants are generally expressed in an insidious fashion. Eutrophication is accelerated, resulting in a shift of game fish species to course fish species, the latter being less desirable to anglers. Salinization also causes a shift in fish species composition, while pesticide contamination can result in failure of game fish to reproduce and siltation can smother spawning habitat. Inexorably, desirable fish species disappear over a period of time as a result of nonpoint source pollution but the alarm is not triggered by dramatic expression.

A classic example of the preceding occurred in Lake George, New York. Lake George had a naturally reproducing population of lake trout, a species prized by anglers. Over the years anglers noted that small lake trout were no longer being caught. Investigation by New York State fishery biolgists confirmed that natural reproduction of lake trout had ceased. Further studies indicated that the lake trout were spawning normally and the eggs would hatch but within a few days of hatching all the young fry died. After considerable expense and time, it was found that DDT, concentrated in the fat globules of the young lake trout's yolk sac, proved lethal when the fat was metabolized.

This type of insidious event can be documented in many, many cases. The scientific fishery literature has the documentation, the causes are chemical and mechanical, direct and indirect.

The DDT was a nonpoint source pollutant and the damage had occurred unnoticed. If all the adult lake trout had died simultaneously and floated to the surface, a hue and cry would have gone up to stop the cause -- it would have been a matter easily dealt with politically.

It has been said that all the easy things to do are already done; only the difficult things remain. That is what we are discussing today; controlling dramatic pollution vs. insidious pollution.

The proposed language to amend the Clean Water Act to add a NONPOINT SOURCE POLLUTION MANAGEMENT PROGRAM is a step in the right direction to identify the scope of the problem. The $150 million expenditure is a small investment to safeguard a fishery that generates $23 billion to the U.S. economy and provides a million jobs.

SPORT FISHING INSTITUTE

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August 10, 1983

Honorable Robert T. Stafford
Committee on Environment and Public Works
Room 133
Hart Senate Building
Washington, DC 20510

Dear Senator Stafford:

This is in response to your letter of July 22, 1983 requesting written response to six questions submitted on behalf of Senator Simpson regarding the recent hearings on nonpoint source pollution legislation.

Answers to the questions posed, in sequence:

1. From a fisheries standpoint, it is imperative that a nonpoint source control program be as comprehensive as possible. A grants program with no strings attached would not provide the necessary results. Using your words, I think we should "put the hammer down."

2. The nonpoint source pollution problem pervades the entire United States and to put it under the control specifically of the Environmental Protection Agency would require far too great a budget. I would recommend that the EPA have an oversight and coordinating function.

3. The first part of this two part question is quite rhetorical. Obviously, there would be jurisdictional disputes between EPA, Soil Conservation Service, state and other federal agencies. The second part of this question is answered in the affirmative.

4. This is a very difficult questions to answer but in general I would say that farmers and ranchers should be required to use best management practices. A financial statement's bottom line should not be the sole criterion if we are going to allow people to pollute.

5. The answer to this question is yes. But, I am not adverse to land use planning if properly done.

6. During the hearing I responded to this question by stating that there are essentially two types of water law in the United States. The eastern states work under the old English riparian law, whereas the western states operate under western water law. In many respects these two systems are inimical. I favor the old English riparian law, so therefore I feel that the downstream state should have a voice in the actions of the upstream state.

Sincerely yours,

GCRadonski

Gilbert C. Radonski
Executive Vice President

GCR:lbb

EP&W/Clean Water Act Hearings
on Nonpoint Source Program

July 22, 1983

On behalf of Senator Simpson, I am submitting the following questions to you for written response. Your response will be placed in the Record of the July 19, 1983 Committee hearings on the proposed Nonpoint Source Management Program.

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenburger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

In view of the schedule for Committee markup of this provision, I would appreciate a response at the earliest possible time.

Please mail your response to Ronald B. Outen, in care of the Enviroment and Public Works Committee.

Sincerely yours,

Robert T. Stafford
Chairman

RTS/ron

STATEMENT OF
ROBERT J. JOHNSON, PRESIDENT
NORTH AMERICAN LAKE MANAGEMENT SOCIETY
BEFORE THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
JULY 19, 1983

Mr. Chairman and Members of the Committee:

My name is Robert J. Johnson and I am president of the North American Lake Management Society, a national organization made up of citizens, scientists, lake associations, and water pollution control professionals who are concerned about poor water quality in our Nation's lakes. In 1982 and 1983 the Society testified before Senator Chafee's subcommittee to support EPA's Clean Lakes Program, authorized by section 314 of the Clean Water Act, and to press for a comprehensive program to address nonpoint source pollution. We are here today to apprise you of how serious the nonpoint source problem really is across this country. States and EPA know where these problems are. Scientific studies are demonstrating that best management practices can be effective in reducing nonpoint pollution. What is needed is simply the authority to implement what we know now. Human lives are being lost, lakes are being destroyed, public drinking water supplies are being threatened, and massive social costs are being borne by the public; future generations of Americans will be forced to pay the cleanup costs if this issue is not properly addressed.

National Scope of Lake Pollution

A July 1981 report by the President's Council on Environmental Quality on environmental trends noted that 85 percent of the Nation's lakes have pollution problems related to accelerated eutrophication and almost half of those problems could not be remedied without nonpoint source controls. A recent EPA report on environmental quality in seven southeastern states noted that water quality problems occur in 376 lakes and impoundments and nearly one half million acres of the lakes had use impairment from point and nonpoint pollution. The most frequent problems were fishkills, nuisance algal blooms, sedimentation, oxygen depletion, and weed infestations. These serious problems are not limited to the Southeast, Northeast, or Midwest. Take Wyoming, for instance. The state recently listed 60 lakes that have impaired use because of water quality problems, most of them nonpoint source in origin.

In early June 1983, the Society sent a questionnaire about lake quality problems to all state water quality agencies. In all the responses we have received to date, the states are saying that nonpoint source pollution seriously affects lake and impoundment water quality. This includes states such as Wyoming, Iowa, South Dakota, Mississippi, Washington, North Dakota, and Colorado. Many states indicate that virtually all lakes are adversely affected.

I am sure this Committee is aware that the lakes and impoundments of this Nation are vital not only for their ecological functions in supporting fish and wildlife but also for the economic basis--measured in the billions of dollars--to many local, state, and national businesses. Unfortunately, lakes are very susceptible to pollution because of their ability to capture pollutants and accumulate them within their water, bottom sediments, and aquatic life. Congress recognized this in 1972 and enacted the section 314 Clean Lakes Program to clean up polluted lakes. It has been a struggle to keep the 314 program alive the last several years, but the Society applauds this Committee for including a

$30 million reauthorization in S. 431. We support this as a reasonable level of effort to encourage states to develop expertise and authority to take over the program in the coming years.

But it is less cost effective to clean up lakes and rivers after they get polluted than to prevent them from being degraded. The longer Congress delays in addressing priority nonpoint source problems, the more expensive it will be for our children and grandchildren to restore suitable quality to our Nation's waters. And the more difficult that task of restoration becomes.

Economic Impact of Nonpoint Sources

Lake Apopka in Florida and Ocean Lake in Wyoming were national treasures in the 1950s. People were attracted from across the Nation for water-based recreation, and the fisheries were of national significance. In the last two decades, massive loads of nutrients from agricultural activities have turned both lakes into pea soup blooms of algae. The famed fisheries have collapsed under the eutrophic conditions, recreation is impaired, and tourism has been seriously affected. The economic losses in tourism have not been estimated, but the price for restoring Lake Apopka is nearly $25 million.

A potentially more serious economic problem is being faced in south Florida because of serious eutrophication problems in Lake Okeechobee. The lake serves as a primary water source for south Florida. Very large loads of nutrients from agricultural activities reach the lake and cause the water quality problems. Measures to reduce the nutrient loading 30-40 percent are projected to cost more than $160 million, with $100 million of that to restore wetland areas in the channelized Kissimmee River enabling it to absorb nutrients from upland agricultural activities.

These channelization projects not only destroy aquatic life but they eliminate wetlands that are valuable in filtering pollutants from runoff water. Channel projects are often used to remove sediment deposits that cause flooding and the costs of such projects should be considered as damage caused by soil erosion. The North Carolina 208 plan indicated that millions of dollars had to be expended in channelization projects in that state to remove eroded sediment that was swamping previously productive cropland. A similar situation exists in west Tennessee. In the Obion-Forked Deer River basin, the U.S. Corps of Engineers reported that upland erosion deposited in channels has caused extensive economic damage by killing 54,000 acres of timber and turning 5,000 acres of productive cropland into swamp. With tens of millions of dollars of public funds already expended for channel projects, with tens of millions of dollars of economic loss suffered by the private sector each year, and with additional proposals for channelization work on the order of $75 million in this one river basin, the extent of economic damage caused by soil erosion is clear. Cropland erosion rates in this area of Tennessee are among the highest in the Nation (averaging 40 tons/acre/ year).

The deposition of eroded soil in west Tennessee has destroyed aquatic populations to the point that the rivers do not meet the goals of the Clean Water Act. In addition, levels of pesticides such as methoxychlor, toxaphene, and parathion exceed EPA criteria in the rivers, and fish in Reelfoot Lake are contaminated with several pesticides. Tragedies have also occurred. Eight bridges over channelized streams in west Tennessee have collapsed in the last five years killing six people. A recent analysis made by the U.S. Geological Survey attributes bridge collapses in the area to the channelization projects.

Other economic costs are borne by the public. Flood damage and dredging costs are extremely high. Certainly several hundreds of millions of dollars have been expended to keep waters open for navigation over the last five years. Federal water projects such as Fishtrap and Dewey Reservoirs in Kentucky are filling with sediment. In the West, sediment is deposited in Federal water projects and displaces water that could be stored for irrigation. The state of Wyoming has identified Boysen Lake as such an example suffering from accelerated sedimentation. Some lakes such as Herman in South Dakota, Temescal in California, McQueeny in Texas, and Mirror in Montana have established limited Federal assistance to slow down the sedimentation problems. Other lakes are less lucky and are being filled in or have already been filled; among these are Davy Crockett and Reelfoot in Tennessee, Oakwood and Kanpeska in South Dakota, Cameahwait and Boysen in Wyoming, Charleston and Taylorville in Illinois, and Wallenpaupack in Pennsylvania. Must the public lose the benefits and enjoyment of these lakes before action is taken? Must their public water supplies be filled with sediment and new expensive reservoirs built? Raleigh, Durham, and Chapel Hill, North Carolina face this. Lake Charleston in Illinois has filled. Eighty-six percent of Illinois's 84 public water supply reservoirs are filling at excessive rates and agricultural erosion is the major cause. $18 million would need to be spent annually to dredge these Illinois reservoirs to keep this current, albeit reduced storage capacity.

An additional type of economic damage results when expenditures are made for point source controls when principal contributors to the water quality problem were nonpoint sources. Examples include phosphorous controls imposed in the Great Lakes on point sources, the expensive advanced wastewater plant constructed in the Occoquan Basin of

Virginia, and requirements for land disposal of municipal effluent in the eutrophic Chowan River basin of North Carolina. And damage is also caused to land resources because of nonpoint sources. The swamping of productive cropland has already been mentioned. Loss of soil productivity and concomitant loss of expensive fertilizers and pesticides threatens the Nation's ability to supply food to feed the hungry in other countries. Irrigation return flows in the West not only seriously affect water quality of major rivers but salt is accumulating on downstream land and may threaten soil productivity. Recent studies on the South Platte River in Wyoming, Colorado, and Nebraska confirm this soil salinity problem.

Public Health Concerns

The public is very concerned about contamination of its recreational areas, its food resources, and its drinking water. Urban runoff and sewer leakages have caused public health concerns about bacterial contamination across the country, from Lake Houston in Texas, Sloan's Lake in Wyoming, and Temescal Lake in California to Fort Loudoun in Tennessee, bays of the Great Lakes, and Myrtle Beach. Concerns are also expressed about bacterial contamination of shellfish waters from animal waste as well as failing septic tank systems. More than 20 percent of North Carolina's shellfish waters are closed due to bacterial pollution. Other southeastern states have higher percentages closed to shellfishing. The economic effect of the closures has been reported to be in millions of dollars annually for single coastal counties with a majority of waters closed.

Fish are contaminated in urban areas as well as rural. Lake George in New York and Summit Lake in Ohio have fish contaminated with toxics from urban runoff; and fish have been eliminated from Como Lake in Michigan. In rural areas such as Reelfoot Lake in Tennessee and Old Town Lake in Arkansas, pesticides contaminate fish. The public is concerned not only from a fisheries standpoint but also from the standpoint of biological indicators of conditions that may be toxic to humans. The state of Tennessee 305(b) Report to Congress notes that water quality criteria for copper and zinc are violated in Parksville Lake downstream of thousands of acres of eroding land surrounding a copper smelter. Fish populations and algae are essentially nonexistent in the 2,000 acre lake because of the toxicity problem. Should not this biological indication of a serious problem be a warning to us about toxic substances?

The public is especially concerned about its drinking water supply. We understand that EPA is considering making the statement that a serious potential exists for adverse impacts from urban runoff on drinking water supplies located downstream of urban areas. This is based on the results of the EPA Nationwide Urban Runoff Program (NURP). A good example of the problem involves Rapid City, South Dakota. The NURP effort in that city documented that lead from urban runoff exceeded drinking water standards in the downstream water supply.

Concerns also exist for drinking supplies with eutrophication problems. This nutrient loading results in nuisance weed growth, pea soup algal blooms, fishkills, impaired recreation, and taste and odor problems in finished drinking water. Examples can be drawn from across the country of these troubled water supplies: Occoquan Reservoir in Virginia, Deer Creek Reservoir in Utah, Loch Raven in Maryland, Liberty in Oklahoma, Dillon in Colorado, and Myna in South Dakota. When this algae filled water is chlorinated for water supply, the organic matter may combine with chlorine to form chlorinated hydrocarbons such as trihalomethanes, which are suspected to be weak carcinogens. Use of multimillion dollar treatment systems such as granulated activated carbon may be necessary in the future if such organic compounds pose actual threats to health. In extreme cases, water supplies must be abandoned because of the extra cost and poor quality finished water. Vandalia Lake and Ureka Lake in Illinois are examples. The City of Twin Forks on the Snake River was forced to abandon its water supply as Milner Reservoir became infested with pea soup algal blooms. Intensive agricultural activities were upstream. Such agricultural activities also affect water supplies in the East. A survey of 380 water supplies in the Southeast found that more than 10 percent suffer from poor water quality caused by upstream agricultural and livestock activities. In Illinois, 80 percent of the 84 public water supply reservoirs must use copper sulfate to combat the algae problems. The cost is staggering. Lake Marion must apply 3,000 pounds six times a year and water treatment costs are greatly increased.

Meeting Clean Water Act Goals

The 1983 interim goal of the Act involves ensuring a water quality for the protection and propagation of aquatic life and recreation in and on the water. Unfortunately, this goal is not being met across the country in rivers, streams, lakes, and estuaries and not only imposes social costs on the public, but it also causes actual economic damage. A good illustration involves the results of an EPA analysis of the benefits that accrue when good quality water is restored to degraded lakes. The analysis showed that on the average $8 of benefits accrued from each Federal dollar expended. On only four lakes that were restored in Washington State, California, Virginia, and Maine, benefits from recreation, water supply, property values, and fish/wildlife that resulted from water quality improvements totaled $90 in discounted benefits for each Federal dollar invested. Clear economic damage results when state designated uses of waters are impaired.

Nonpoint source pollutants from agricultural activities and urban areas cause the majority of nonpoint problems in our Nation. It is said that the Missouri basin, with its high density of livestock operations, has an organic pollution wasteload equivalent to the population of China. Some of these operations are classified as point sources, many are classified as nonpoint sources. Excessive loadings of nutrients from animal waste and cropland have caused serious eutrophication previously mentioned in lakes (algal blooms, weeds, fishkills) that concern the public. The problems previously mentioned in Lake Apopka and Okeechobee in Florida and Ocean Lake in Wyoming are related to this excessive nutrient loading. Other serious problems have been caused from Cobbossee Lake in Maine, Cannonsville Reservoir in New York, and Black Hawk Lake in Iowa. Such problems involving algal blooms and fishkills occur in Boysen Lake, Wyoming, and EPA estimates that 94 percent of the phosphorus loading in this lake comes from nonpoint sources, mostly agricultural in nature. And now, the State of Wyoming is concerned about pea soup blooms of algae on Flaming Gorge Reservoir, the most recreationally important lake in Wyoming with its nationally recognized fishery. The problem is getting worse according to the state and 90 percent of nutrient loading is attributed to nonpoint sources, again much of it agricultural in origin.

Similar eutrophication problems related to excessive nutrient loading from agriculture are also evident in North Carolina. While citizens are concerned about Phelps Lake and Lake Waccamaw in the coastal area, they are more concerned about damage in the estuarine areas. A good example involves the Chowan River basin. For the last decade, massive blooms of algae have been implicated in causing fishkills, reducing commercial and sports fisheries, impairing recreation, and decreasing property values. Scientific investigations by the State of North Carolina have shown that nonpoint sources, mostly agriculture, contribute more than 95 percent of nitrogen and phosphorus in the river. The problem is not limited to this basin but it occurs throughout the coastal waters. Entire populations of commercial fisheries have been eliminated in some coastal waters. I am attaching to this testimony a report on this serious nonpoint source problem in North Carolina that recently appeared in a peer-reviewed scientific journal. As the algae die, oxygen is used up in the waters. This deoxygenation resulted in eight fishkills of greater than 25,000 fish or crabs in North Carolina estuaries during the summer of 1978 and 1979.

Part of coastal North Carolina's problem can be attributed to the development of corporate "superfarms," farms of greater than 100,000 acres in areas that were once wetlands but were drained for agriculture. The drainage canals deliver storm water to fish and shellfish nursery areas and shrimp and oysters are especially affected. Rose Bay oysters were famous on the East coast years ago, but they no longer can flourish because of the agricultural canals and poor water quality. Serious economic impacts may soon be felt by the coastal fishing industry if best management practices are not utilized.

In contrast to the lack of salinity caused by stormwater drainage in coastal North Carolina is the increase in salinity caused by irrigation practices in the West. The Arkansas River in Colorado increases in salinity from a trace to 2,000 parts per million in 120 miles and the Pecos River in New Mexico increases salinity threefold to 2,000 parts per million in only 30 miles. This salinity damages fisheries and impairs use of the water. An example of damage comes from the State of Wyoming. Fishkills and physiological problems in the fish occur in Soda Lake because best management practices are not utilized.

Do Best Management Practices Work?

It is clear that economic damage of national importance is being caused by nonpoint sources. The public is concerned about health implications of water quality problems caused by these diffuse sources, and goals of the Clean Water Act are not being attained across the Nation because of this pollution. Similar to the debate over acid precipitation, opponents of BMP implementation say that not enough information is known about cause and effect, cost effectiveness, or social acceptability of BMPs. I would answer these concerns by saying that the nonpoint problems are known and are causing unacceptable economic damage, scientists have shown BMPs to be effective in reducing nonpoint source loads, and it is time to simply implement what we know before our valuable lakes and estuaries are irretrievably lost.

The EPA Clean Lakes Program was a leader in years past in funding implementation of urban and agricultural best management practices to protect lake quality. Enough experience has been gained from that program to know that BMPs are effective in protecting water quality. Diversion of the first flush of urban stormwater to recharge basins was effective at Lake Eola, Florida. Wetlands can even be created to filter urban runoff in certain areas. This was done at Lake Jackson, Florida. Retention basins and wetlands were utilized effectively to remove urban stormwater pollutants at Clear Lake and Phalen Lake in Minnesota. Diversion of stormwater at Mirror Lake in Wisconsin reduced phosphorus concentrations 65 percent and algal blooms did not recur. Settling ponds were effective at Hylan Lake, Minnesota, and Temescal Lake, California. The EPA Nationwide Urban Runoff Progrm is finding detention basins to be quite effective in improving stormwater quality. Suspended solids reductions commonly exceed 70 percent, nutrient reductions exceed 50 percent, and heavy metals reductions exceed 70 percent. BMPs have also been developed to abate combined sewer overflow problems. The BMP program for Syracuse, New York to protect Onandaga Lake is a good example of cost-effective sewer overflow abatement to protect lake quality.

Agricultural BMPs have also been implemented under EPA's Clean Lakes Program. Agricultural BMP implementation has been funded for agricultural pollution control in the watersheds of Spiritwood Lake (North Dakota), Chochrane Lake and Herman Lake (South Dakota), Cobbossee Lake (Maine), Skinner Lake (Wisconsin), Broadway Lake (South Carolina), and Rivanna Lake (Virginia). At White Clay Lake, BMPs resulted in about 60 percent reductions in annual phosphorus loading. Results are also available from USDA's Model Implementation Program (MIP). BMPs helped to reduce nutrient and sediment loads at Cannonsville Reservoir (New York), Lake Herman (South Dakota), and Pittsfield Lake (Illinois).

Other information on agricultural BMP effectiveness is available from the Black Creek study in Indiana and other research from the Great Lakes region. In North Carolina, soil conservation practices were implemented in a watershed and sediment transport was reduced 70 percent. Near Raleigh, North Carolina, best management practices in a small watershed were recently shown to reduce sediment loss 99 percent, nitrogen loss 92 percent, and phosphorus loss 90 percent. Use of buffer strips in Minnesota reduced solids and nutrients from animal feedlots by greater than 75 percent. Use of biological filters downstream of cropland in Florida reduced nutrient loads by greater than 70 percent. Effectiveness of conservation tillage, grassed waterways and other conservation practices has been known for decades. Likewise, water conservation techniques have been known for years to reduce salinity problems from irrigated agricultural land in the West. Simple retention ponds in irrigation lateral ditches were monitored for five years near Milner Reservoir in Idaho. About 75 percent of sediment and 30 percent of phosphorus was removed and better pond designs would likely provide more removal efficiency. In both the northern and southern Great Plains, limited tillage has been shown to reduce erosion and phosphorus delivery to rivers, and in Texas it has been shown to increase profits almost threefold on limited irrigation of crops while minimizing pollutant generation. Research and actual field experience have shown BMPs to be effective in abating combined sewer overflows, urban runoff, and agricultural pollution. Currently, the public is being forced to bear the billions of dollars of damage caused by this pollution. It is now simply a matter of deciding whether our Nation's waters should remain polluted by nonpoint sources or whether we should utilize existing knowledge to eliminate these water quality problems.

A National Nonpoint Source Program

Many members of the Society deal daily with lake management problems. They have found that BMPs were not extensively implemented as part of the voluntary plans prepared as part of the 208 program. The 208 plans are insufficient, and in some cases, states did not declare BMPs, lest BMP implementation be required. It is the Society's observation that BMPs can be implemented, for example as part of EPA's Clean Lakes Program, when the government pays for part of them (cost sharing or other public subsidies). There are still many land users in these projects that do not wish to comply with BMP implementation and there are questions as to whether sufficient water quality improvement will take place if these key land users do not participate.

A national program to control nonpoint sources is desperately needed to mitigate economic damage caused by the pollution, to restore designated uses to waters, to protect water quality for future generations, and to preserve valuable land and water resources. In general, the Society supports the national nonpoint source program proposed as section 11 of S. 431. We especially support the need to base identification of waters adversely affected by nonpoint sources not only on violations of applicable standards but also on designated uses of the waters that are not attained because of nonpoint pollution. This is an important requirement because many problems that degrade lake and estuarine water quality--such as sedimentation and symptoms of eutrophication--do not have applicable standards established by the states. We also support the provision for a commitment in identifying strategies of how management practices and control measures will be implemented to restore and maintain water quality suitable to attain the goals of the

Act within a specific timeframe. The specific timeframe and a commitment on strategy is necessary to avoid repeating earlier mistakes of the section 208 planning program. The 50 percent matching requirement for Federal fund eligibility for implementation is a valuable element of the program. Federal, State, and local cooperation is essential to restore waters degraded by nonpoint sources and this matching requirement will assure--as it does in the EPA Clean Lakes Program--that state and local commitments to implementation will be made since they will devote their funding to the program.

The Society is fearful that the public at large will not have sufficient opportunity to understand, analyze, and comment on the adequacy of state management programs and EPA approval of these programs. Use of the term "notice and opportunity for public comment" in the proposed legislation may connotate an essentially after the fact public hearing on the proposal rather than actual public participation in formulating the proposal. The Society requests this Committee to incorporate requirements for "up front" public participation as part of state program formulation and subsequent EPA approval. The Society also suggests that the phrase "to reduce pollutant loadings resulting from such nonpoint sources" (proposed section ____(b)(2), line 9) be replaced by "to attain and maintain applicable water quality standards or designated uses where no applicable water quality standards exist." If the goal of the program is simply to reduce pollutant loadings, it will not prove cost effective. The appropriate measure of the effectiveness of the program in the eyes of the public will be attainment and maintenance of standards and designated uses. The intense interest of the public in clean water demands such a performance goal for a national nonpoint source program.

NALMS is also concerned that the proposed provision regarding interstate nonpoint source pollution may be insufficient to achieve attainment and maintenance of applicable standards, designated uses, or goals of the Act. This interstate pollution causes priority problems across the country, from the Snake and Colorado Rivers to Palisades Reservoir (Idaho and Wyoming), Big Stone Lake (South Dakota and Minnesota), the Great Lakes, and the Chowan River (Virginia and North Carolina). The Federal government should take the lead in resolving problems of an interstate nature if that water does not meet the goal of the Clean Water Act. A more aggressive Federal role than the one proposed in proposed section 11 will be required to meet citizens' concerns about waters not attaining the goals of the Act.

NALMS supports the basic thrust of the proposed National program and suggests that the authorization for subsection (e)(1) is much too small to provide for significant water quality improvement in degraded waters. The program is consistent with the NALMS recommendation for addressing nonpoint sources that we presented before the Senate and House in 1982. The proposed program provides a mechanism to ensure that both point and nonpoint sources will be addresed in a tradeoff fashion as part of the States' continuing planning process, as was the original intent of section 208 of the Act. It will encourage cooperative, interagency approaches to correcting existing problem areas to protect water quality, and to preserve valuable land resources for sustained use. The Society wishes to reiterate that without strong Federal leadership, specific milestone dates to measure progress, and public participation, nonpoint sources will continue to cause economic damage across the country and lakes as well as estuarine resources may be irretrievably lost.

The North American Lake Management Society appreciates the opportunity to speak on behalf of our Nation's water resources before this Committee. This concludes my testimony.

NORTH AMERICAN LAKE MANAGEMENT SOCIETY

"Chartered in East Winthrop, Maine

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July 21, 1983

Honorable Robert T. Stafford
U.S. Senate
SH-133, Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Stafford:

During my testimony on July 19 before your Committee, Senators Mitchell and Chafee asked for written responses to a series of questions. While my testimony contains the answers to those questions, I thought I would reiterate the position of the Society on those specific questions.

In response to Senator Mitchell, yes, the national program must be mandatory in nature with EPA being responsible for States that do not wish to participate. A specific deadline for implementation is essential for the program to work. The proposed four-year deadline seems appropriate, but extensions may be necessary in some complex instances. The proposed Federal consistency provision is important but may not be sufficient to encourage implementation. Actual use of cross compliance sanctions will likely be necessary. Finally, the interstate provision is not stringent enough. EPA is responsible for ensuring attainment of clean water goals in interstate waters. The proposed provision will work if the downstream State chooses to become concerned about the existing water quality problem from an upstream State source. If it does not, a provision should be available for EPA to be responsible for a river basin wide plan to achieve standards and designated uses. Also, Senator Mitchell was concerned about uniformity of the provision across State boundaries. He was specifically concerned that an upstream State may not have as strict a water quality standard as a downstream State. Should the upstream State then be subjected to the same or potentially even greater pollution control requirements as the downstream State places on its discharges? We have to agree with Senator Mitchell that perhaps an enforcement conference type provision orchestrated by EPA should be made available and part of river basin wide planning to handle such situations. The current language does not provide for that flexibility.

In response to Senator Chafee's question, our testimony indicates that the authorization level is much too low to address all of the major nonpoint source problems nationally. The nonpoint source problem is larger than the remaining problems from publicly owned treatment works, yet only six percent of the level of construction grant funding is authorized for nonpoint sources. Even if the authorization for section 11 were increased to $250 million annually, which we support, substantial financial resources must be derived from State, local, and private sources to address this critical problem. We believe that this funding level is appropriate and that people will not wait around to get their fair share if the authorization is kept this low. Also, by keeping the matching requirement at 50 percent or less, people will realize that waiting is not beneficial. Any funding the authorization provides should be looked at as seed money to encourage participation and should be used to handle only the most critical problems.

Once again, this organization appreciates the opportunity to participate in this important debate, and we hope our comments are helpful.

Sincerely,

Robert J. Johnson
President

Robert J. Johnson
President

cc: Honorable John H. Chafee
Honorable George J. Mitchell

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Sanford N. Young
Tallahassee, Florida

July 26, 1983

Honorable Robert T. Stafford
U.S. Senate
SH-133, Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Stafford:

In response to the questions contained in your July 22 letter to Robert J. Johnson, I am providing the written response for the North American Lake Management Society (NALMS). While the Society's July 19 testimony before your Committee and the July 21 response to questions posed by Senators Mitchell and Chafee contain answers to some of the current questions, the Society is providing specific responses to each question for your Committee's use.

Question 1. The scope of the National Nonpoint Source Program must involve a combination of grants as well as sanctions if this Nation is to reach the goals of the Clean Water Act. Neither approach, by itself, will be effective in turning attention to nonpoint source problems. Grants are needed to provide encouragement and sanctions are needed to provide motivation if encouragement fails.

Question 2. The NALMS July 19 testimony was clear in describing why EPA oversight and consistency was needed to achieve abatement of nonpoint sources. It is clear that a water quality agency of national scope and authority needs to be ultimately responsible for solving these water quality problems. Such an agency would organize the efforts and certify that Clean Water Act goals were finally met. Just as with the solid waste, mining, and other water programs, minimum Federal standards for a program need to be met, the program delegated to the States, and oversight needs to be accomplished. States demonstrated during the section 208 process that they would not implement voluntary programs by themselves. A Federal role for EPA is evident if Congress is concerned about nonpoint sources.

Question 3. As indicated by the NALMS response to question 2, nonpoint sources create water quality problems, and EPA on the Federal level and State water quality agencies on the State level must be responsible for organizing programs to solve the problems. Jurisdictional and bureaucratic disputes will occur between Federal and State agencies because their missions are different. Placing the program under one water quality agency (that utilizes the capabilities of other agencies) is essential.

Question 4. NALMS testimony noted that billions of dollars of economic damage is being caused by nonpoint source pollution and irretrievable loss of some land and water resources may be taking place. Our testimony cited many instances where BMPs have proven cost effective. In a recent issue of the Journal of Soil and Water Conservation, conservation tillage in Texas was shown to increase profits almost threefold on limited irrigation of crops while protecting water quality. In North Carolina agricultural BMPs reduced sediment and nutrient loss by more than 90 percent in a watershed; and one participating farmer reduced his fertilizer bill from $10,000 to $2,000 and his corn yields were fourth highest in the State (214 bushels/acre). At the July 19 hearings, we heard testimony by the Tennessee Valley Authority indicating that on about 100 demonstration farms, BMPs lowered production costs and increased crop yields. Certainly some costs will be incurred in using sound land management practices to improve water quality, but in many cases these BMPs are very cost effective.

Question 5. Senator Durenberger's nonpoint source program is certainly not a form of factor land use planning. It is simply a measure to implement sound land management practices, not changes in land use. Page 1460 of the Legislative History of the Clean Water Act clearly states the position of the Senate Committee on Public Works in reporting the 1971 Amendments that became P. L. 92-500: "this legislation would clearly establish that no one has the right to pollute--that pollution continues because of technological limits." For nonpoint sources, countless research, studies, and demonstrations have identified effective BMPs for improving water quality. The requirement to use BMPs (because no one has the right to pollute) is firmly entrenched in the legislative history and is not defacto land use planning.

Question 6. The question about enforcing downstream State regulations on upstream States is not germane to the legislation before the Committee. The proposed legislation reads: ". . . the downstream State may petition the Administrator to require any upstream State to develop an implementation plan under subsection (b)(1) which is compatible with the implementation plan adopted by the downstream States." This does not mean that the downstream State will impose its regulations on the upstream State. EPA will ensure compatibility in the implementation plan. This means the upstream State will need its own program . . . and it may not necessarily involve regulations similar to downstream States. In fact, NALMS favors EPA being responsible for interstate pollution problems and establishing minimum Federal requirements for consistency among States in each river basin so that water quality standards may be met and designated uses restored.

The North American Lake Management Society appreciates the opportunity your Committee has provided to participate in this national debate and we hope that you will seriously consider the comments we have provided.

Sincerely,

Eben Chesebrough

Eben Chesebrough
President-elect

cc: Ronald B. Outen
U.S. Senate
Committee on Environment and
Public Works
SD 410, Dirksen Senate Office Building
Washington, D.C. 20510

PREPARED STATEMENT OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Ladies and gentlemen, members of the Committee, thank you for the opportunity to appear before you today on a matter of considerable significance to the long-term health of our nation's waterways.

My name is Linda Bochert. I appear on behalf of the Wisconsin Department of Natural Resources and its director, Secretary C. D. Besadny. I am the Executive Assistant to the Secretary of the Wisconsin DNR. The Wisconsin Department of Natural Resources has broad environmental protection and resource management responsibilities ranging from managing parks, forests, fish and game, to administering air pollution management, solid waste management, water quality and municipal treatment plant construction grants programs. Among our water quality responsibilities is the administration of the Wisconsin Nonpoint Source Water Pollution Abatement Program. In addition to my comments, I am submitting written testimony which describes that program in greater detail.

Beginnings of Wisconsin's Nonpoint Source Program

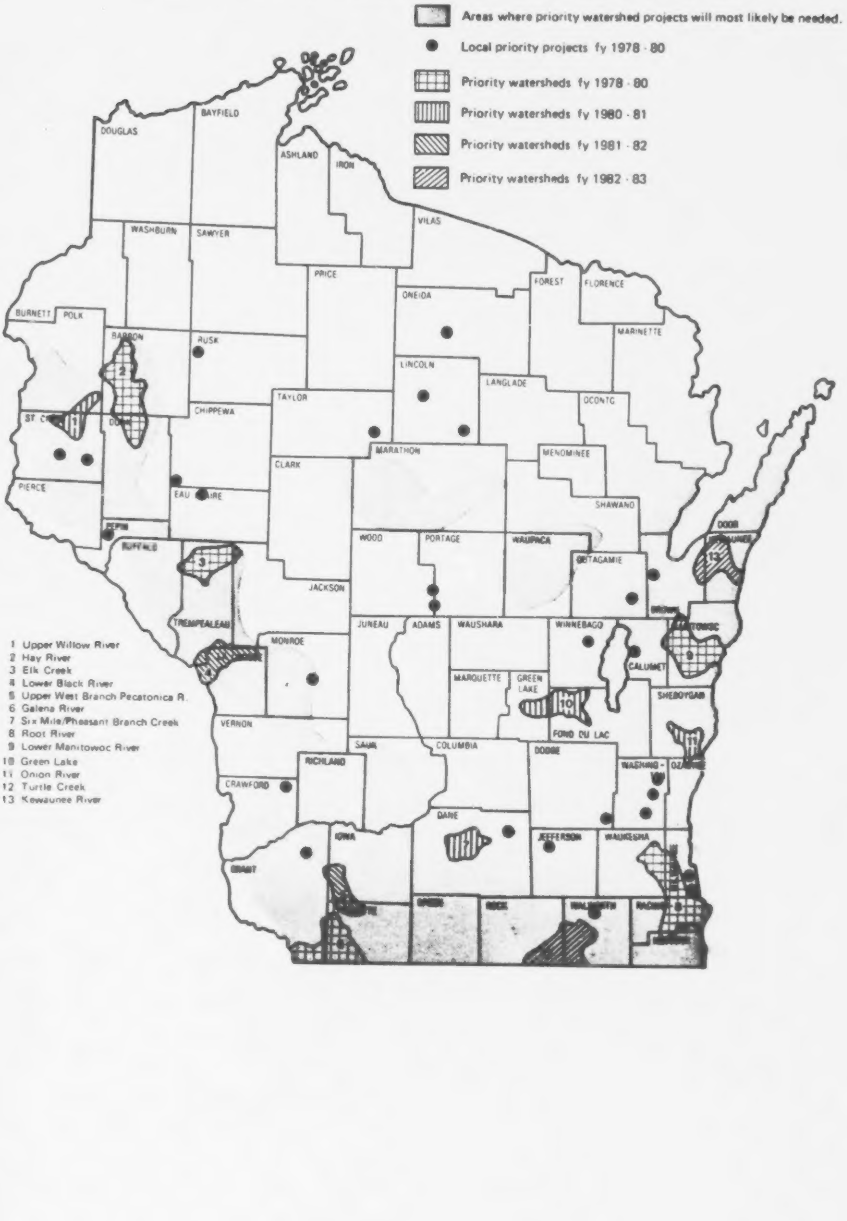
In 1978 Wisconsin became the first state to enact a statewide nonpoint source water pollution abatement program. Although initial efforts in Wisconsin's water pollution abatement program were directed at the control of point source pollution, it soon became apparent that there was a need for a parallel nonpoint source control program. The Legislature and Governor recognized this need for a comprehensive point source/nonpoint source water pollution abatement approach and enacted the Wisconsin Fund grant program which provided funds to cost share both point and nonpoint source control projects. Since 1978, Wisconsin has appropriated over 21 million dollars in state funds for the nonpoint source control program. The program is administered by the state's water quality agency - the Department of Natural Resources.

Nature of Wisconsin's Nonpoint Source Water Quality Problems

Wisconsin is internationally known for its numerous high quality recreational lakes and streams. This is due, in part, to the aggressive and long standing point source control efforts. As a state we take great pride in the water pollution abatement progress we have made through control of point source discharges.

Wisconsin is also internationally known for its high quality agricultural products. You may be surprised to learn that Wisconsin has more dairy cows than any other state. We are located in the northern corn belt, and also have several sizable urban areas. As a result, we estimate that about 40 percent, or 130 out of 330 delineated watersheds in Wisconsin, are in need of nonpoint source control projects. These 130 watersheds shown on the shaded area of the attached map include: many of Wisconsin's trout and smallmouth bass streams; over 60 large, deep inland lakes located in the heavily populated southeastern part of the state; and the majority of the drainage area to Lake Michigan. Most of these lakes and streams are not impacted by point sources. Some are

Locations of current nonpoint source abatement projects and the critical nonpoint source areas.


▨ Areas where priority watershed projects will most likely be needed.
● Local priority projects fy 1978 - 80
▦ Priority watersheds fy 1978 - 80
▥ Priority watersheds fy 1980 - 81
▧ Priority watersheds fy 1981 - 82
▨ Priority watersheds fy 1982 - 83
1 Upper Willow River
2 Hay River
3 Elk Creek
4 Lower Black River
5 Upper West Branch Pecatonica R.
6 Galena River
7 Six Mile/Pheasant Branch Creek
8 Root River
9 Lower Manitowoc River
10 Green Lake
11 Onion River
12 Turtle Creek
13 Kewaunee River
DOUGLAS
BAYFIELD
ASHLAND
IRON
VILAS
WASHBURN
SAWYER
PRICE
ONEIDA
FOREST
FLORENCE
BURNETT
POLK
BARRON
RUSK
MARINETTE
LINCOLN
LANGLADE
TAYLOR
OCONTO
ST CROIX
DUNN
CHIPPEWA
MARATHON
MENOMINEE
CLARK
PIERCE
EAU CLAIRE
SHAWANO
PEPIN
BUFFALO
WOOD
PORTAGE
WAUPACA
DOOR
KEWAUNEE
OUTAGAMIE
JACKSON
BROWN
TREMPEALEAU
JUNEAU
ADAMS
WAUSHARA
WINNEBAGO
MANITOWOC
MONROE
CALUMET
MARQUETTE
GREEN LAKE
SHEBOYGAN
LA CROSSE
FOND DU LAC
VERNON
SAUK
COLUMBIA
DODGE
WASHINGTON
OZAUKEE
RICHLAND
CRAWFORD
DANE
JEFFERSON
WAUKESHA
IOWA
GRANT
LAFAYETTE
GREEN
ROCK
WALWORTH
RACINE
KENOSHA

impacted by both point sources and nonpoint sources. In these cases, despite our achievements with point source controls, the water pollution clean up will not be complete until the nonpoint sources are controlled as well. The types of nonpoint sources we are dealing with include: eroding construction sites in urbanizing areas; polluted stormwater runoff from existing urban areas; eroding stream banks; eroding croplands; and manure from barnyards and farm fields.

The following examples are cited to illustrate Wisconsin's nonpoint source water quality problems. In the last 15 years, the fishery in some of Wisconsin's (and the Midwest's) best smallmouth bass streams has degraded to a point where the streams are no longer fishable. In Livingston Branch stream, 1,000 bass per stream mile were found in a 1964 survey. A survey conducted on the same stream in 1980 found no bass at all. Nor are the problems restricted to small streams. During the spring of 1980 and again in 1981, the dissolved oxygen in 65 miles of the Wisconsin River was nearly depleted. Although there are a number of municipal and industrial point source dischargers to the river, wasteload modeling specialists estimated that manure runoff from farm yards and fields was the major cause of the problem. In the highly agricultural section of southwest Wisconsin, stream monitoring on Pat's Creek found dissolved oxygen levels and ammonia levels considered unsafe for fish during and after some rainfall runoff events. And monitoring of urban streams in Milwaukee has measured high levels of lead and other heavy metals.

In the last few years, we have only begun to understand the nature and severity of groundwater problems caused by nonpoint sources. In scattered areas of Wisconsin, manure entering creviced bedrock has resulted in high nitrate levels in private wells rendering them unhealthful for some human consumption.

Description of Wisconsin's Nonpoint Source Program

The Wisconsin Nonpoint Source Water Pollution Abatement Program is comprehensive in nature. It addresses both urban and rural nonpoint sources which impact water quality. State funds from the program are used for financial, technical, and educational assistance. Landowners, land users, and municipalities are all eligible recipients of the financial assistance funds.

The program uses a priority watershed project approach. The priority watersheds average about 100,000 acres in size. Grants are made for projects with critical water quality problems caused by nonpoint sources. Financial assistance is limited to identified priority management areas which are contributing most significantly to the water quality problems.

The Wisconsin Department of Natural Resources, a state agency, is responsible for administration of the program. The implementation of projects, however, is carried out by county level agencies including the county boards and the county land conservation committees.

This approach combines the water quality and fishery expertise of the state agency with the land management expertise of the county level agencies. A detailed plan for each watershed is prepared jointly by the Department and the county. Preparation of this plan requires a comprehensive assessment using computerized models. This assessment identifies pollutant loadings, critical sources, the quantities and types of nonpoint source control practices needed, and the costs of the practices. Along with this land management assessment, data on water quality, fish populations, fish habitat and potential for improved recreational uses are analyzed. The plan also identifies who will be responsible for the various implementation tasks, and lays out a schedule for the installation of practices. The plan guides the 6 to 8 year implementation phase of the particular project.

The priority watershed projects are selected by the Department of Natural Resources. The selection process involves recommendations from the general public, county elected officials, and representatives of federal, state, and local agencies and interest groups.

Progress and Projected Needs

To date, eleven priority watershed projects are being implemented, two are in the plan development stage, and four have been selected and will begin plan development in the fall of 1983, for a total of 17 watershed projects. One of the projects is being funded jointly with the Experimental Rural Clean Water Program. Another is jointly funded with the Soil Conservation Service's PL 566 program.

At this time, a total of $21 million in state funds has been committed to these 17 watershed projects and 27 smaller-scale projects. About $19 million is being used to cost-share the installation of nonpoint source control practices and about $2 million to support county-level technical assistance and educational activities. The state's program funding has grown from $1.3 million in 1978-79 to over $5.5 million in 1984-85. The total projected need for nonpoint source projects in Wisconsin is about $250 million (1981 dollars). About $200 million of the projected need is for financial assistance and about $50 million for technical assistance, education assistance and local administration activities.

We have been asked to comment specifically on the legislative proposal being considered by this committee. In that regard we offer the following.

1. There is a definite need for a national, comprehensive, urban and rural nonpoint source control program. Most importantly we see the need for a national nonpoint source water quality goal - especially for interstate waters. We believe that the uniformity of the point source control program, by virtue of its national scope is one of its major strengths. Also, there is a need for some type of a federal clearinghouse for the transfer of information among states including sharing available and proven nonpoint technology. Without this transfer of information, duplicate efforts and studies will undoubtly take place. Wisconsin would welcome financial assistance in managing nonpoint sources but any such assistance should be constructed in a flexible manner in order to supplement State efforts and allow each state to design an appropriate program.

2. A nonpoint source program must be a water quality program. It must be geared to achieving water quality objectives. Management of all aspects of the program, including: selection of project areas, identification of critical sites, and identification of design standards for nonpoint source controls, must be based on water quality objectives. Also it must be integrated with federal and state water resources programs such as: inland lake rehabilitation; point source permit and grant programs; and fish management. In Wisconsin, this has been achieved through assigning this responsibility to the state's water quality agency, the Wisconsin Department of National Resources.

3. EPA should be the lead federal agency in this program. EPA, as the agency responsible for national water quality programs, has the technical expertise for the establishment of water quality standards which are the foundation of the program. EPA can best provide the necessary integration with point source control programs. In the recent past the federal effort was primarily occurring in the Department of Agriculture rather than within the water quality effort ongoing at EPA. Also, the water quality research capabilities of EPA are needed to deal with both urban and rural problems. For example, the pesticide concerns in rural areas and the heavy metal concerns in urban areas involve issues that need additional research in order to better manage those problems.

4. As proposed, states should be required to meet certain criteria prior to receiving federal program funds. This should include the development of the administrative and institutional structures to handle a nonpoint source program, methods for the identification of critical watersheds, estimation of costs to control the urban and rural nonpoint sources, and a timetable or schedule for implementing the program. EPA approval of these programs should be required. Some minimum level of state program funding should also be required. We are willing to share our experiences and assist EPA in developing regulations for the program.

5. We support the need for deadlines for states developing adequate nonpoint source control programs. The nine month period for submitting a program is reasonable if federal funds are provided to aid in developing the program. This legislation should make available financial support to the states for the preparation of the plans. Currently the proposed legislation allows EPA to intervene if a state has not developed an adequate program within eighteen months. We recommend that the eighteen month period be eliminated. In its place, EPA should have the ability to intervene after nine months or approve extensions beyond the nine month period. The EPA review period could be shortened from six months to three months if EPA works with the states in developing their plans.

6. There is a need to authorize EPA to impose sanctions if a state does not develop an acceptable program. Intervention by EPA may not be sufficient inducement for an unwilling state to develop a program. We are not in the position to comment on specific types of sanctions. However, we question the appropriateness of sanctions directed only at one sector associated with the nonpoint source problem. Furthermore, we support the provision prohibiting federal agencies from supporting or providing financial assistance for any activity which does not conform to the state's plan.

7. In developing regulations for this program, EPA should recognize the need for using a comprehensive approach. Wisconsin's experience has shown the advantages of assessing both urban and rural sources, implementing controls, and evaluating accomplishments on a watershed basis. The case-by-case approach used in many point source programs or the individual farm-by-farm approach used in many erosion control programs cannot be used effectively. For further information, we have copies of a report on the program prepared for Wisconsin's Legislature and Governor.

We applaud these efforts to establish a federal nonpoint source control program. It is an effort that is long overdue. While Wisconsin is certainly no stranger to the role of leader in environmental programs, we believe we have stood alone in this particular field long enough. We invite the rest of the nation to join us in controlling the nonpoint sources of pollution to our nation's waterways. Thank you very much.

PRIORITY WATERSHED PROJECTS IN WISCONSIN - 1983

Project	County(ies)	Year Project Selected	Area (sq. mi.)
Galena River	Grant, Lafayette	1979	242
Elk Creek	Trempealeau	1979	113
Hay River	Barron, Dunn	1979	276
Lower Manitowoc River*	Manitowoc, Brown	1979	160
Root River	Racine, Milwaukee, Waukesha	1979	197
Onion River	Sheboygan, Ozaukee	1980	111
Sixmile-Pheasant Br. Creek	Dane	1980	118
Green Lake	Green Lake, Fond du Lac	1980	98
Upper Willow River	Polk, St. Croix	1980	177
Up.W. Br. Pecatonica River**	Iowa, Lafayette	1981	77
Lower Black River	La Crosse, Trempealeau	1981	164
Kewaunee River	Kewaunee, Brown	1982	139
Turtle Creek	Rock, Walworth	1982	299
Little River	Oconto	1983	216
Oconomowoc River	Washington, Waukesha, Jefferson	1983	131
Crossman Creek-Little Baraboo	Sauk, Richland, Juneau	1983	218
Fall, Bear Grass, and Bridge Creeks	Eau Claire	1983	117

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* The Lower Manitowoc River Watershed was selected as an experimental federal Rural Clean Waters Program Watershed in 1979.

**The Upper West Branch Pecatonica River has also been approved for funding under the Small Watershed Program (P.L. 83-566).

State of Wisconsin Nonpoint Source Program Appropriations
1978 - 1985

Wisconsin State Appropriations	FY 78-79	FY 79-80	FY 80-81	FY 81-82	FY 82-83	FY 83-84	FY 84-85	Totals
Priority Watershed								
Cost Sharing Funds	840,000	1,070,000	2,330,300	2,681,300	2,834,100	3,572,000	4,948,000	18,275,700
Local Assistance Funds*	150,000	100,000	166,200	211,900	349,200	480,000	640,000	2,097,300
Local Priority Projects	360,000	355,100	-	-	-	-	-	715,100
Total	1,350,000	1,525,100	2,496,500	2,893,200	3,183,300	4,052,000	5,588,000	21,082,100

*This money is granted to the counties for technical and educational assistance and for the local administration of the program.

THE WISCONSIN NONPOINT SOURCE
WATER POLLUTION ABATEMENT PROGRAM

A REPORT TO THE GOVERNOR AND LEGISLATURE

Submitted by the Department of Natural Resources
Bureau of Water Quality Management
Nonpoint Source Section
March, 1982

[Note: The following has been excerpted from the above named report.The complete report has been retained in committee files.]

EXECUTIVE SUMMARY

INTRODUCTION

The Wisconsin Legislature created the Nonpoint Source Water Pollution Abatement Program in 1978 as part of the Wisconsin Fund. Programs aimed at the control of distinct, point sources of water pollution have been conducted since the 1920s, but more diffuse sources of pollution called nonpoint sources were largely ignored. In recognition of the seriousness of water quality degradation from nonpoint source pollution, the Legislature provided funds to be used for cost sharing the installation of approved land management practices which are designed to control nonpoint sources. The control of nonpoint pollution sources will protect or rehabilitate the state's water resources. Funds were also provided for planning, educational, and technical activities within selected watersheds.

The original legislation recognized the need to provide an evaluation of the effectiveness of the initial years of the Nonpoint Source Water Pollution Abatement Program. The following report is submitted to the Legislature and the Governor in response to this request. The nature and magnitude of nonpoint source problems, program evaluation, conclusions and recommendations are summarized below.

NATURE AND MAGNITUDE OF THE PROBLEM

Nonpoint sources are land areas where runoff from rainfall and snowmelt picks up many water-polluting substances as it moves across various land surfaces, including croplands, barnyards and city streets. Because these sources are widespread and diffuse, they are commonly referred to as nonpoint sources.

Nonpoint sources of pollution adversely affect the water quality of the state's lakes, streams, groundwater, and wetlands in a number of ways. These effects include physical changes in the water (temperature or clarity), increased nutrient levels, and decreased dissolved oxygen, which can cause changes in the population and variety of fish and other aquatic life. These adverse changes also reduce the recreational uses of the water body, as well as its usefulness as a potable water supply.

Nonpoint sources probably affect almost every lake and stream in the southern two-thirds of Wisconsin. The watersheds draining to those lakes and streams most significantly affected form a U-shaped pattern that begins in Polk County in the northwest and continues southward through the west-central, southwest, southern and east-central parts of the state, turns northward along Lake Michigan, and ends in Oconto County. This zone contains approximately 130 watersheds out of the 330 watersheds found in Wisconsin. Included in this zone are more than 120 deep, high quality, recreational inland lakes plus the near shore waters of Lake Michigan. About 40 percent of the state's class I and II trout streams, many smallmouth bass streams, and many severely degraded streams are also located in this area.

To date, studies of nonpoint sources have consistently shown a close relationship between land use activities and water quality. In general, the more intensively the land is used and the more poorly it is managed, the greater the degradation of associated surface waters. In Wisconsin, the major nonpoint source problems arise from:

1. Animal wastes, which become a problem as a result of improper manure spreading, poor barnyard runoff management, and failure to control livestock access to water courses, all of which results in the easy transport of manure to lakes and streams.

2. Cropland erosion, which generates sediment and attached pollutants that are carried in runoff water and subsequently fill and degrade lakes and wetlands, destroy fish habitat and cause nuisance weed and algae growth.

3. Woodland grazing by livestock, especially on steep slopes, which destroys the ground cover, and allows the soil to be eroded and carried away. This sediment is deposited in lakes and streams, where it causes the same problems as sediment from croplands.

4. Construction activities, which result in increased erosion, sedimentation and stormwater volume, cause serious water quality degradation and localized flooding problems in urban and urbanizing areas.

5. Stormwater or snowmelt runoff from existing urban areas carries many pollutants present on streets, sidewalks, and other impervious urban areas into storm sewers and then into water courses.

Besides nonpoint sources of water pollution, pollutants from point sources such as pipes from industries or wastewater treatment facilities or other distinct discharge sources, malfunctioning septic systems and natural or noncultural sources also contribute to decreased water quality in lakes and streams. However, point sources have generally been easier to identify and therefore are easier to control than nonpoint sources. An active point source control program has been operational in Wisconsin since 1925. It is currently estimated that control programs for most of the point sources around the state will be initiated by 1983. Replacement or upgrading of failing septic systems has been actively pursued by many counties and are eligible for state financial assistance. This will leave nonpoint source pollutants as the major remaining impacts on the Great Lakes, major inland lakes and a significant portion of smallmouth bass and trout streams.

PROGRAM ELEMENTS

The Wisconsin Statutes (Section 147.01(1)(b) require that all the state's waters meet fishable and swimmable levels of water quality. In order to meet this goal, an aggressive program for the control of both point and nonpoint sources of pollution is necessary.

In the nonpoint source control program, a number of concepts have been adopted. Foremost among these concepts is the decision to concentrate available financial and technical resources in those critical areas where maximum water quality benefits would result from the investment made. This concept is the basis for the priority project approach used in the program. The priority project approach is a locally implemented program for the systematic concentration of available resources into critical project areas where maximum improvements in water quality can be achieved.

Two sizes of priority projects are used in the Nonpoint Source Water Pollution Abatement Program: Priority Watershed Projects, which are areas of about 100,000 acres, and Local Priority Projects, which are areas less than approximately 6,400 acres.

The responsibility for administering the nonpoint source program at the state level lies with the Department of Natural Resources because it is the state water quality agency. In cooperation with other state, local, and federal agencies, the Department selects priority projects and prepares detailed watershed plans with the involvement of local agencies (called Designated Management Agencies or DMAs). In addition, the Department disburses the cost sharing and local assistance funds necessary to implement the nonpoint source program.

The structure of the program provides for local implementation through the DMAs which are identified in the areawide water quality management plans. In areas where more than one DMA exists, a lead DMA is identified. In rural areas, Soil and Water Conservation Districts (SWCDs) jointly with county boards serve as the DMAs. In incorporated areas, cities and villages act as DMAs.

Priority Watershed Projects are hydrologic units where nonpoint source problems occur over extended areas and where major portions of the watersheds require an intensive program approach. The specific areas within the watershed that contain the most significant sources are identified as Priority Management Areas. It is only in these Priority Management Areas that the installation of Best Management Practices under this program occurs. Best Management Practices are the array of land management practices which are the most practical and economical means of controlling nonpoint source problems within the Priority Management Area. Many of these practices are cost shared with the landowner or municipality to encourage their adoption. In general, cost sharing rates vary from 50 to 70 percent per practice with no limitation on maximum amounts except for animal waste storage facilities. With supplemental county funds, the total cost share per practice can reach 90 percent on several selected practices.

At the present time, there are 11 ongoing Priority Watershed Projects which were selected between 1979 and 1981. In general, a typical Priority Watershed Project follows an eight to nine year progression from selection to completion of practice implementation.

The Local Priority Project is also an important component of the program, because not all nonpoint source problems warrant a total watershed approach such as the large scale priority watersheds. Many lakes, and streams can be adequately protected through smaller scale projects. Between 1979 and 1980, 28 Local Priority Projects were funded, of which 23 are ongoing and 5 have been completed.

The selection process for priority projects is designed to involve local and regional interests while meeting statewide water quality goals and objectives. The Priority Watershed selection process has four steps:

1. Initially, 25 percent of the 330 watersheds statewide are identified using a numerical ranking system along with additional "wild card" selections submitted by nine regional review committees.

2. Regional committees then review the nominated watersheds and each region recommends up to three watersheds, resulting in a total of approximately 27 watersheds statewide.

3. The State Nonpoint Source Coordinating Committee, a multi-agency and interest group advisory committee, reviews the regionally-recommended watersheds and advises the DNR on watershed selection.

4. The DNR makes the final selection of projects.

While a number of criteria are considered in the selection process, the most important consideration is the effect that the project will have on improving water quality.

Local Priority Projects were selected from applications submitted by Designated Management Agencies. The criteria used for project selection were similar to those used for the selection of Priority Watershed Projects. Currently, both the criteria and selection process for Local Priority Projects are being reviewed and revised.

PROGRAM EVALUATION AND CONCLUSIONS

The accompanying report evaluates in detail the general structure and approach of the Wisconsin Nonpoint Source Water Pollution Abatement Program, the rate of progress toward achieving the objectives of the program, and the progress within the individual projects. The findings are summarized below.

The general administrative structure of the program appears to be working well. The state role in the program assures that state water quality objectives will be met and that coordination exists between other water quality management programs. Because the DNR has the statutory responsibility for the protection and management of the state's water resources, it is the most appropriate agency to administer the program.

The SWCDs appear to be the appropriate Designated Management Agencies in rural areas because of their day to day involvement with the Soil Conservation Service, Agricultural Stabilization and Conservation Service, University of Wisconsin-Extension, and county boards.

Since program experience in incorporated areas is limited, it is difficult to thoroughly assess the effectiveness of cities and villages as DMAs. However, they generally appear to be the appropriate agencies to serve as DMAs, and it is anticipated that their effectiveness will be realized in the future as more urban areas are involved in projects.

In the past, some administrative and coordination problems have occurred with projects located in more than one county, due to the lack of experience of the DMAs in dealing with multi-county issues. With additional program experience, improved coordination should result.

The priority project approach is central to the program's administrative approach because it allows for a comprehensive evaluation of land use and water resources. It has proven to be an effective means for identifying the most significant nonpoint source contributing areas as well as focusing available resources into those areas.

The Local Priority Projects necessarily compliment the Priority Watershed Projects by addressing nonpoint source problems of smaller scale. However, failure to adequately define objectives for some of the earlier Local Priority Projects resulted in the need to review and modify the selection process.

The priority watershed selection process has been responsive to program changes. To date, the projects selected reflect the program's water quality objectives, and projects that both protect and rehabilitate state waters are included. The selection process has succeeded in involving federal, state, regional and local agencies and various other interests.

While monitoring activities have been adequate to define current or baseline water quality conditions in the watershed projects, additional monitoring will be necessary to further understand the relationships between the installation of land management practices and improved water quality. Monitoring is also necessary to document water quality improvements that result from project implementation.

To meet the state's water quality goals, it is projected that 130 of the state's 330 watersheds will need implementation on the scale of a Priority Watershed Project, along with many less intensive Local Priority Projects. At the current rate of project initiation, this will take from 35 to 45 years to complete. Such a long time frame will be too slow to prevent irreversible degradation of some of the state's more sensitive recreational lakes and streams.

Since the achievement of nonpoint source objectives is dependent on improving the level of land management, both the current levels of landowner participation and the projected installation of Best Management Practices in critical areas are useful indicators of overall program effectiveness. Generally, the projected level of participation in some Priority Watershed Projects is approaching 75 percent. However, participation by landowners in several specific critical areas is somewhat lower. This lower participation generally occurs in areas where cash grain cropping predominates, among livestock operators adjacent to lake and streams, where intensive construction is occurring, and in areas where woodlands grazing is common. Because landowner participation is voluntary, local agencies depend on educational programs and peer pressure to encourage cooperation. In addition, financial incentives are an integral component of any voluntary program. In general, the financial incentives of the nonpoint source program appear adequate. However, increased financial incentives for conservation tillage in cash grain cropping areas will be tested during 1982 and 1983.

RECOMMENDATIONS

Based on the previous evaluation and conclusions, the following recommendations are made in the accompanying report:

A. Program Structure and Administration

1. The Wisconsin Nonpoint Source Water Pollution Abatement Program is working well and should be continued. The state level administration coupled with local implementation has resulted in sound, well conceived projects which are consistent with the program objectives.

2. Although Soil and Water Conservation Districts are appropriate Designated Management Agencies, their capabilities should continue to be upgraded, particularly in the areas of project management and inter-county coordination.

3. The Local Assistance Budget should be increased to be consistent with implementation needs. A stable financial base is essential to allow local governments to plan future needs.

4. Funding for Local Priority Projects should be reinstated since these projects are scaled to deal with nonpoint source problems involving small drainage areas, where the larger scale Priority Watershed Projects are inappropriate.

5. Funding should be identified for monitoring and evaluation within project areas. It is essential that the achievement of project objectives be evaluated.

6. State staffing levels for the Department of Natural Resources and UW-Extension should be increased to be consistent with the planning and implmentation needs of the program. This is necessary since the supplemental federal funding sources which have been used in the past to assist in these activities are no longer available.

B. Rate of Progress Toward Achieving Program Goals.

1. The Legislature should adopt a 25 year implementation strategy which would provide an orderly and systematic approach toward meeting water quality goals and objectives. The number of new Priority Watershed Projects initiated should be increased to eight per year. This would result in a maximum of 64 watersheds concurrently undergoing implementation.

2. The program budgets should be increased to be consistent with the 25 year strategy. The estimated maximum annual needs for cost share and local assistance funds under this strategy is $18 million (based on 1981 dollars).

C. Rate of Achieving Participation Levels in Project Areas.

1. If current participation trends continue, modifications to the program, including possible regulatory authorities, may have to be considered. Until the sign-up period in the initial group of priority watersheds has been completed, it is not appropriate to evaluate the need for these modifications. The Department will continue to evaluate participation trends, test an increased incentive program for conservation tillage for cash grain farmers, and will again report to the Legislature and Governor when the current trends can be evaluated more thoroughly.

2. To achieve maximum benefits of both water quality protection and improvement and soil depletion control in the most timely manner, existing soil erosion control programs should place primary emphasis on achieving water quality objectives.

In summary, the Wisconsin Nonpoint Source Water Pollution Abatement Program has made progress in identifying, quantifying and controlling major nonpoint source problems in Wisconsin. A more complete evaluation of the trends observed in the Priority Watershed Projects will be available as critical stages of these projects are completed. The strategy and recommendations presented in the report will assure that the original objectives of the Nonpoint Source Water Pollution Abatement Program are achieved in an efficient and timely manner.

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INTRODUCTION

It has been recognized since the mid-1970's that the control of nonpoint sources of water pollution is a necessary component of a complete water quality program. This control is particularly necessary if the Wisconsin water quality goal of fishable, swimmable water, as stated in Section 147.01(1)(b) of the Wisconsin Statutes, is to be met.

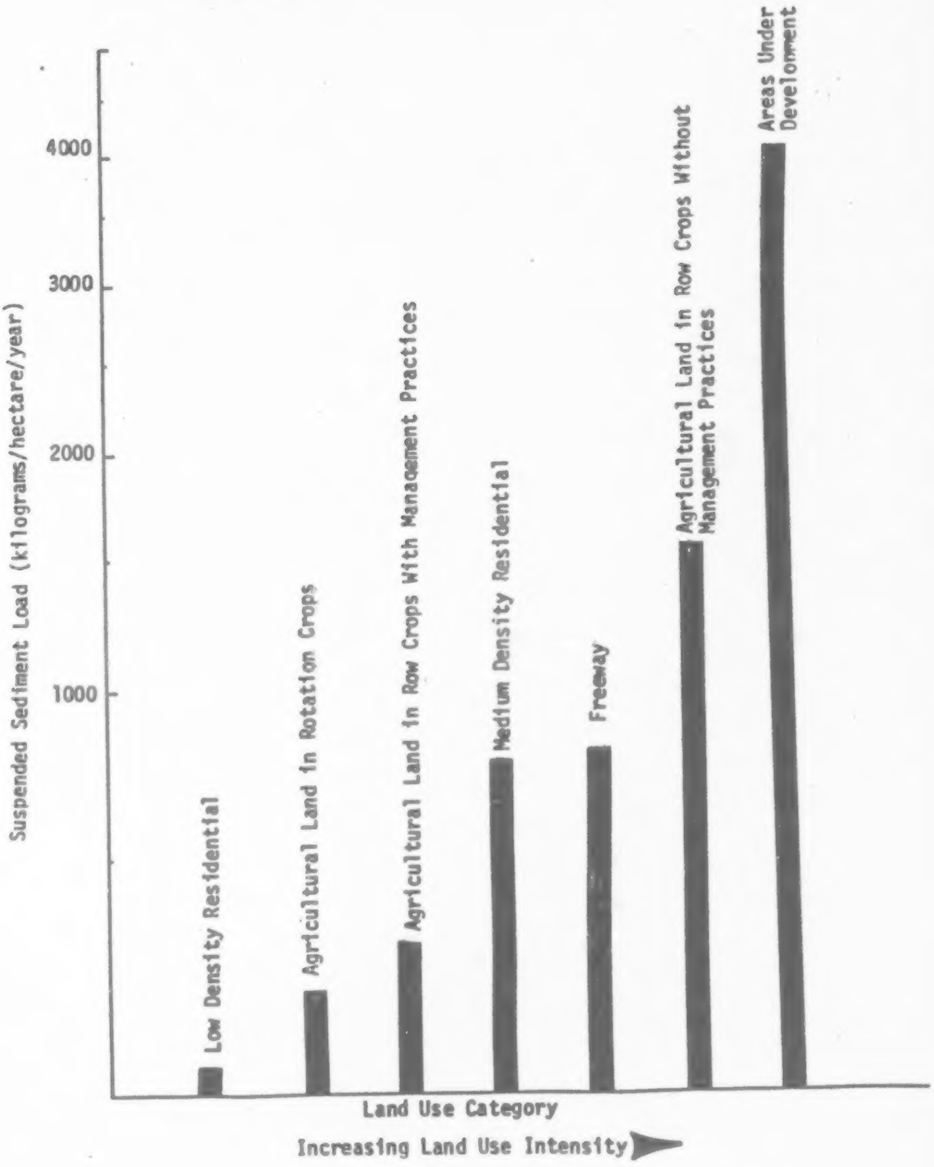
The control of nonpoint source pollution has become the focus of a major state water quality program which was included as a component of the Wisconsin Fund, established in 1978 by the Wisconsin Legislature. This state program, designed to deal specifically with nonpoint source pollution, is called the Nonpoint Source Water Pollution Abatement Program. It provides funds to be used within selected watersheds for planning and educational and technical activities, along with cost sharing the implementation of approved land management practices necessary for protecting or rehabilitating the state's water resources.

The original program legislation required the Department of Natural Resources to submit a program evaluation report in January 1982 to the Governor and the Legislature. This report is in addition to the annual program report that is submitted to the Legislature.

As requested, this report evaluates the current status of the Nonpoint Source Water Pollution Abatement Program, and discusses future needs and strategies for the program. The initial sections, which discuss the nature and magnitude of nonpoint source pollution problems in Wisconsin, are followed by a discussion of the administration of the program and current program activities. The Program Evaluation Section evaluates the overall program structure, administration, and institutional arrangement for the implementation of control measures.

Based on these evaluations, a number of alternatives which could be used to modify the existing program are discussed in the Recommendation Section, which also includes, at the specific request of the Legislature, recommendations for several specific modifications for the legislature to consider. Several of these modifications may have regulatory alternatives. In response to the Department's and Legislature's concern over the past experience of the voluntary approach to solve critical resource degradation problems, several recommendations about this concern are also included in this report.

Figure 1:
The relationship between intensity of land use and suspended sediment load for selected land use categories.



CONCLUSION

A more complete evaluation of the trends observed in the Priority Watershed Projects will be available as critical stages of the projects are completed. The Department of Natural Resources will keep the Legislature and Governor appraised of the significant findings of the continuing evaluation through the program's Annual Report.

Wisconsin has traditionally pursued the protection of its natural resources with innovative and progressive programs. The Wisconsin Nonpoint Source Water Pollution Abatement Program is in keeping with this tradition. This report has discussed the nature and magnitude of nonpoint source problems and evaluated the capabilities of the current programs to address these problems. Progress has been made in identifying, quantifying and controlling major nonpoint source problems in Wisconsin. The strategy and recommendations presented here will assure that the original objectives of the Nonpoint Source Water Pollution Abatement Program will be achieved in an efficient and timely manner.

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Carroll D. Besadny
Secretary

BOX 7921
MADISON, WISCONSIN 53707

August 2, 1983

Mr. Ronald B. Outen
Committee on Environment and Public Works
412 Dirkse Office Building
Washington, D.C. 20510

Dear Mr. Outen:

Thank you for the opportunity to provide additional comment on the proposed Nonpoint Source Pollution Management Program. The State of Wisconsin believes this proposed program is long overdue and an important component of a comprehensive national water quality management program. Following is a brief discussion of each of the questions reviewed in Senator Stafford's July 22, 1983 letter.

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenburger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

An effective national nonpoint source control program must be comprehensive in scope. It must deal with both urban and rural nonpoint sources. Management of all aspects of the program, including selection of project areas, identification of critical sites, and identification of design standards for nonpoint source controls, must be based on water quality objectives. Also, it must be integrated with state and federal water resources programs such as inland lake rehabilitation; point source permit and grant programs; and fish management.

The grant program is a key component of this proposal, and should certainly be part of the final bill. In addition to grant assistance, the federal program should provide technical expertise and assistance for those aspects mentioned above. Also, a research and development element is needed to help states manage, for example, the pesticide concerns in rural areas and heavy metal concerns in urban areas. In addition, a federal program should provide a clearinghouse for transfer of technical information.

We believe that all states should be required to develop and implement a nonpoint source control program. Unless states are required to participate, there is no assurance that interstate or downstream waters will be cleaned up. Efforts of one state may not achieve their objectives due to a lack of effort by another state. Similarly, in some situations point source control efforts may not achieve their objectives without nonpoint source control efforts. In addition, we should consider the equity issue. If we are asking a farmer or municipality to bear a portion of the costs to control their nonpoint sources, we should expect others in identical situations, but in other states, to do their share as well. For example, without equal responsibility for the entire dairy industry, it is likely Wisconsin's dairy farmers will bear an unfair burden.

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

EPA should be the lead federal agency in this program. It is the only federal agency which can meet the comprehensive program needs identified in the answer to question 1, above. EPA, as the agency responsible for national water quality programs, has the technical expertise for the establishment of water quality standards which are the foundation of the program. EPA can best provide the necessary integration with point source control and other water resources management programs. Also, the water quality research capabilities of EPA are needed to deal with both urban and rural problems.

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

Undoubtedly problems might arise because of jurisdictional or bureaucratic disputes if program responsibilities are shared between agencies. One agency should have program responsibility. In Wisconsin, the program responsibilities are placed with the Department of Natural Resources, the state water quality agency. However, the Soil Conservation Service works closely with the Department at the state level and assists the rural designated management agencies at the county level. The Soil Conservation Service does not provide assistance to municipalities nor does it have the expertise to deal with many urban nonpoint sources. Involvement of the Soil Conservation Service and other U.S. Department of Agriculture agencies is an aspect which can be negotiated by the state or designated management agencies. It should not be an involvement which is structured or mandated at the national level.

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

Our experience to date in Wisconsin shows that the majority of the farmers will participate with cost-share levels of 50 to 70 percent. There have been individual farmers, however, who have not participated due to financial difficulties. In Wisconsin's program, the financial burden on the farmer is reduced in three ways. First, the farmer may schedule the installation of the nonpoint source controls over a five year period. Second, the farmer's share may be met through "in-kind" services such as labor, machinery, and materials. Third, contributions of money, labor, or materials from counties, rod and gun clubs, lake associations, etc. may go towards the farmer's share. In addition, existing federal and state tax provisions reduce the financial burden. As a consequence, we believe that utilization of best management practices is an appropriate and achievable requirement of the program.

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

We do not believe a nonpoint source control program is a form of de facto land use planning or control. The program uses voluntary implementation of practices which improve the management of the land, rather than change or restrict the particular land use through such things as zoning. The emotional outcry of de facto land use control was raised a number of times during the development of the areawide water quality management plans and early years of the nonpoint source control program in Wisconsin. The five years of experience in Wisconsin have diffused the issue.

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

Yes, we are concerned that a downstream state could enforce its regulations on an upstream state. We see the need for a provision allowing a downstream state to petition to require an upstream state to develop an implementation plan. However, the provision needs to be flexible. An upstream state needs to develop a plan which best suits its needs, rather than to develop a plan which is compatible or identical with the plan adopted by the downstream state. The provision should require states to have consistent water quality objectives and EPA approval of the upstream state's plan while taking into account the downstream state's plan.

We would be pleased to provide you or the Committee with any additional information or further discussion on these questions if you desire.

Sincerely,

Linda Bochert
Executive Assistant

LB:jd:4003W
cc: Committee on Environment & Public Works

TESTIMONY OF
JOHN PERRY BARLOW
ON THE CLEAN WATER ACT AMENDMENTS OF 1983
BEFORE THE COMMITTEEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

Washington, D.C.
July 19, 1983

Mr. Chairman and distinguished members of the Committee, my name is John Perry Barlow and I speak to you today on behalf of the New Fork Irrigation District of Cora, Wyoming. I also believe I speak for the many farmers and ranchers in this country who place the purity of our water above short-term economic gain.

I flood irrigate about 2,500 acres of hay meadow in the Upper Green River Valley. You might say we're at the head of the creek in the Colorado drainage, and I'm acutely aware that the water which crosses my land will one day flow from taps in Beverly Hills. For this reason, I take pains to keep that water clean and heartily approve any programs which would inspire my colleagues to do likewise.

Non-point source water pollution control is so vital that argument on behalf of its merits hardly seems necessary. I would briefly point out an advantage to the amendment you are considering which may not have been mentioned.

I refer to the fact that a sound non-point control program will encourage agricultural practices which are prudent and discourage such short-sighted land exploitations as plowing up the high plains, over-fertilization, and the irrigation of alkaline desert soils. Really, effective non-point legislation would be the best way I can think of to address an even more pressing problem: the stipping of America's precious top soil.

I also think that the Chafee-Durenberger Amendment before you is, overall, a wiser Federal approach to a pollution problem than most. In passing it, you would be placing the responsibility where it belongs: at the state and local level. The amendment also displays good sense in emphasizing the carrot of Federal funding over the stick of Federal intervention. Further, I would like to commend Senators Chafee and Durenberger for their suggesting a standard of compliance based on normal agricultural practices rather than some misty-eyed ideal. And finally, while I share completely Senator Durenberger's distrust of cross-compliance as an enforcement cudgel, I am strongly convinced that the threat of EPA involvement must remain in the amendment. There is nothing which will motivate a recalcitrant legislature more rapidly than feds on the rimrocks.

All that said, I have a few caveats and suggestions I would commend to your attention before you engrave this thing in bronze.

First of all, I fear you may be a bit over-optimistic about the value of the 208 program findings. My own experience with the study that took place in Wyoming under that aegis does not recommend the unscrutinized implementation of its findings as though they were holy writ. I am not alone in that view. In a recent conversation with Luna Leopold, former Chief Hydrologist of the U.S.G.S., I was told that he considered the 208 results "sketchy, inadequate, and, occasionally, misleading."

Let me share a couple of examples from my own experience. One would be the fact that when the study was conducted in my part of Wyoming, it omitted completely any reference to the greatest source of siltation in the Upper Green, which is, as any local water user would tell you, the clear-cutting of timber. Another case in point regarded the problem of eutrophication in Flaming Gorge Reservior. The investigators apparently accepted at face value allegations by municipal water managers in Rock Springs and Green River, Wyoming that nutrient loading was the result of flood irrigation upstream. They did so despite the fact that Fontenelle Reservior, situated between us and thos municipalities, was not displaying similar problems. Also ignored was independant evidence that the biggest contributor of nitrogen was raw sewage being dumped into a tributary of the Green by the City of Rock Springs.

I could go on. But I am convinced that there may be many such cases where 208 did not provide us with the necessary data base for immediate adoption of control procedures. For that reason, I would suggest some leniency and, indeed, assistance, should an individual state wish to conduct more detailed study before cracking down. I'm not trying to buy time for polluters. But I do know that much of the hostility which has been directed at environmental measures results from their half-cocked implemention. Too often the legislative branch of government has passed well-intentioned laws, congratulated itself soundly, and moved on to slay the next dragon without checking to see if the last one was really dead. This duty is usually left to a bunch of bureaucrats whose zeal for regulation sometimes exceeds their common sense.

Secondly, while I commend the extension of authority to the states in these matters, I'm not sanguine about any state's ability to regulate the behavior of Federal agencies. And two of the major perpetrators of non-point polluting practices in my part of America are the Forest Service and the Bureau of Reclamation. Others have sufficiently detailed the practices I am referring to, so I won't burden you with another indictment. I do think you're going to need something more specific than paragraph g on page 28 of the amendment in order to get these two agencies to act responsibly because no one can evade a regulation better than a regulator.

Thirdly, I fear that the uneven quality of the 208 studies may lead to inequitable distribution of funding if you stick to the apportionment formula outlined in the bill. It may be necessary for some states to conduct further studies fot the reasons I stated a moment ago. That will take money, and those additional needs should somehow be recognized.

Finally, I would like to mention the financial plight of agriculture, a crisis of which you are all aware. I expect you are going to find that many polluting farmers are incapable, for monetary reasons, of correcting the error of their ways, however much they'd like to. I certainly don't want to reward the absence of virtue, but I'd like to suggest that some funding be earmarked for low interest loans specifically designated for agricultural pollution control. This amendment simply won't be worth a hoot without enthusiastic agricultural support. You're a lot mroe likely to get that with incentives than penalties.

There is a lot more than I can say in five minutes. Let me close by thanking you for your kind attention to the views of an ordinary rancher and by reiterating my support for your efforts to control non-point source water pollution. The problem is big. The problem is diverse, amorphous, and almost intractible. But we have, as a nation, no alternative to solving it. And the absence of alternatives makes braver men of us all.

Thank you.

CATTLE AND HORSES

RANGE
BRIDGER NATIONAL FOREST

Bar Cross
Land and Livestock Company

CORA, WYOMING 82925

July 27, 1983

Senator Robert Stafford,
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C.

Dear Senator Stafford,

Since departing our tropical seat of government, I have been playing catch-up ball here at the ranch. Non point water pollution control has been far from my thoughts. I appreciate, however, the urgency of the questions you have submitted and I will try to answer them as best I can. I'm relying heavily on your and the committee's forbearance because I am surely not up to speed and lack the time to get there.

I will answer the questions in order without repeating them:

1. The hammer should go down. But selectively, and in cases where both an industry and a state clearly have no intention of using the grants for their intended purpose: cleaning up the water. I'm confident that enough people are sincerely concerned with this that you won't have to wear your hammer out. But it should be clearly visible in the legislation.

2. The EPA should be the hammer in question. It should be made clear that if, after a reasonable time (four years?), a state has made no effort to create a program for non point control, the EPA would begin to provide one. If everyone is as afraid of the feds as we are in Wyoming, that approach should work very well. I can also see some role for the EPA as a mediator and source of technical data which might have been generated in one state without being spread to another state with similar problems.

3. I certainly do. I don't know if every state has the equivilant of Wyoming's Department of Environmenal Quality, but if that is the case, such an agency should have final authority after consulting with the other agencies involved. However, I think the Soil Conservation Districts should have a great deal to do with the grass roots implementation of the program, just as the EPA should be involved in the manner stated above.

4. In my testimony I suggested that part of the monies set aside for the program be earmarked for low interest loans with which farmers might institute Best Management Practices. I don't view this as a give-away to agriculture, though some would call it that, but a

more cost effective way to spend the money..The only expenditure will be the difference in interest rates between that offered in the improvement loan and the going rate...plus a modest administrative cost. In other parts of the program, most of the money will go to administration. In essense, I recommend that you harness greed. The best way to get someone to serve the public interest is to make it coincide with his own. Agriculture is barren of capital today. The prospect of loans would make believers out of a lot of the legislation's detractors.

5. In the sense that any public protection of a resource will sooner or later amount to a sort of land use planning, yes. But the larger community has long reserved the right to make those choices. We are not going to strip mine the Mall nor timber the National Arboritum. (Lord, Could we?) The sticky part arises when all the lands in question are private. But the case record makes it clear by now that a man cannot do as he pleases with his own land if in doing so, he endangers the welfare, safety, or morals of the larger community. Surely the water belongs to us all. Those who own the lands it flows through must recognize that.

6. Yes. And that is why I suggest that you incorporate interstate basin compacts and their governing bodies into the amendment. I realize that such a method might not work in the east, but it would be essential here. Without it, the whole thing would degenerate into interstate bickering, blame-shifting, and back-biting. The river comissions in the west are not free of such frailities, but they're surely not unfamiliar with means of dealing with them.

Again, I apologize for the slap-dash nature of my responses. I could make them more elegant with time and thought, but I don't believe time and thought would incline me to change their substance.

As I said in Washington, I am moved that we live in system which makes it possible for the private citizen to express his opinion to his leaders, as I have done to you, with some small but tangible faith that it will be acted upon.

Sincerely,

John Perry Barlow

John Perry Barlow

EP&W/Clean Water Act Hearings
on Nonpoint Source Program

July 22, 1983

Mr. John Barlow
Barcross Ranch
Cora, Wyoming 82925

Dear Mr. Barlow:

On behalf of Senator Simpson, I am submitting the following questions to you for written response. Your response will be placed in the Record of the July 19, 1983 Committee hearings on the proposed Nonpoint Source Management Program.

1. The original approach this Committee took was primarily a grants program to assist states. The amendment that Senator Durenburger formulated went beyond that approach. What do you feel should be the scope of a nonpoint source control program? Should we just have a grants program or should we put the hammer down?

2. What do you believe should be the role of the Environmental Protection Agency in the nonpoint source control process? Should EPA have any function at all, should it have an oversight and coordinating function or should the entire program be placed with EPA as are our other pollution control programs?

3. Do you see any problems that might arise because of jurisdictional or bureaucratic disputes between EPA, the Soil Conservation Service or other state and federal agencies? Would placing the program under one agency reduce these conflicts?

4. Do you think that a requirement that farmers and ranchers use Best Management Practices will be cost prohibitive for financially strapped farmers and ranchers?

5. Do you think that a nonpoint source control measure similar to Senator Durenberger's would result in some form of de facto land use planning?

6. Are you concerned that a downstream state could enforce its regulations on an upstream state?

In view of the schedule for Committee markup of this provision, I would appreciate a response at the earliest possible time.

Please mail your response to Ronald B. Outen, in care of the Enviroment and Public Works Committee.

Sincerely yours,

Robert T. Stafford
Chairman

RTS/ron

STATEMENT OF SENATOR CHARLES McC.MATHIAS, JR.

The EPA Chesapeake Bay Program identified both rural and urban runoff problems. It identified several kinds of pollutants and pinpointed critical areas where those pollutants are most serious. That identification of problem areas fits nicely into the non-point proposal before this Committee.

The population of the Bay region is projected to double by the Year 2000. The vast changes in land use -- urbanization-- which that Year 2000 projection indicates, tell us we need to plan for such rapid growth so that the Bay's waters might be productive and clean.

Forested land in the Bay's drainage basin accounts for almost 60 percent of the land area. Urban residential land use is an additional 14 percent. Cropland acreage has been decreasing over the years while there has been a dramatic increase of 182 percent of urban/developed acreage between 1950 and 1980.

Urban runoff in the form of toxics and heavy metals, and raw sewage from combined sewer/stormwater system overflows were identified as major contributors to Bay pollution. The National Urban Runoff Program found that of 28 metropolitan regions studied, Baltimore's rainwater runoff most frequently exceeds state and federal water quality standards. The dirt and dust of city streets is highly contaminated with bacteria and toxic metals such as lead, zinc, and copper. EPA officials recently speculated that acid rain is eating away the metal from copper downspouts, flashings, and even auto bumpers. All of these carcinogens ultimately wash into the Bay.

We know how to control many of these runoff problems. Storm water retention basins to collect toxic sediments, street sweeping, use of porous paving materials, and preservation of creeks, streams, and vegetation in developing areas are all steps in a concerted non-point pollution control program. But such a program can only come about when national emphasis is placed on the importance of addressing the problem and when the federal government commits itself to cost-sharing.

Agricultural cropland also was identified as a major rural non-point source of nitrogen and sediments. Maryland loses an estimated 22 million tons of soil through erosion each year, much of it to the Bay. Nationally, the Agriculture Department estimates that more than 5 billion tons of topsoil are lost each year, 2 billion of it to the nation's lakes and streams.

This does not have to happen and can be controlled. But it will take federal leadership, funding, and targeting in a coordinated way.

This year a 22-county area of Maryland and Pennsylvania counties bordering the Susquehanna River was designated by the Soil Conservation Service as the Mason-Dixon Soil Conservation District. This is a targeted area to which farmer assistance is targeted. It will enable farmers to get the assistance they need to make decisions about tillage practices, herbicide and pesticide practices, animal waste and feedlot practices, and related farm management. This is particularly important for an area of many small farms, a significant portion of which are Mennonite, Quaker, and similar religious sects that must be convinced that different farming practices will not do violence to their religious beliefs. The Susquehanna River, which the district borders, provides over 50 percent of the fresh water entering the Bay.

This Mason-Dixon proposal required interstate cooperation between Pennsylvania and Maryland, a harbinger, we all hope, of future interstate pollution control steps.

Similar instances of cooperation and coordination have occurred in the past. For instance, the Three Mile Island nuclear reactor shutdown involved continuous communication between Pennsylvania and its downstream neighbors of Maryland, the District of Columbia, and Virginia. More recently, Maryland Governor Hughes and Virginia Governor Robb journeyed to Harrisburg to enlist the support of Pennsylvania Governor Thornburgh in pursuing pollution control strategies for the Bay.

Interstate cooperation is made much easier when a Federal carrot is held out to encourage it. The non-point source program proposed for the Clean Water Act does just that by ensuring a federal carrot for both upstream and downstream communities.

So the provisions of the bill before you to ensure a continued federal EPA role in cleaning up our nation's waters are most important. The improvement of our nation's water quality is an overriding national mandate, which must be exercised by EPA in the likely event that a state defaults on its obligations to adopt a non-point plan of action.

The proposal recognizes the preeminence of the states' expertise in knowing what and where their critical non-point problems are and it defers to their good judgment. This is as it should be.

The federal consistency provision ensures that the states' programs are not inadvertently thwarted by the array of federal programs of which states avail themselves. This New Federalism measure assures the cost effectiveness of states' programs. It is very similar to the coordinated federal approach taken to Barrier Islands to assure that the federal left hand knows what the federal right hand is doing.

And lastly, I commend the bill's setting of deadlines for plan implementation. We all know how easy it is to put off 'til tomorrow what should and could be done today. The 48 month timeframe for state implementation sets a target and ensures movement toward it. Deadlines are an integral part of both the Clean Air and Clean Water statutes. This provision is no different.

I am pleased with the initiatives displayed at the state level in the Bay region to remedy shared problems. The environmental problems that once appeared most intractible are being addressed forthrightly by the states of Maryland, Virginia, the District of Columbia, and Pennsylvania.

1896

STATE OF UTAH
OFFICE OF THE GOVERNOR
SALT LAKE CITY
84114

SCOTT M. MATHESON
GOVERNOR

July, 15, 1983

Honorable Robert T. Stafford, Chairman
Senate Full Committee on Environment & Public Works
United States Senate
SH - 133 Hart Senate Office Building
Washington, D.C. 20510

RE: Senate Reauthorization of the Clean Water Act 1983
Nonpoint Source Pollution Management Funding

Dear Senator Stafford:

The need for implementation funding to help control nonpoint source (NPS) pollution has long been recognized. Your committee's efforts to develop legislation authorizing such funding for a NPS Pollution Management Program is one option for providing some of the needed assistance. We support the need for such funding, however I must emphasize that for the NPS program to remain effective in Utah, it must continue on a nonregulatory basis. Specifically, sufficient legislative requirements, regulations and administrative oversight currently exist to manage an effective NPS program.

In our Utah program, the State Department of Agriculture's newly approved Agricultural Resource Development Loan Program could be used to match any available federal dollars and would result in an attractive and beneficial program to farmers and ranchers for animal waste management, erosion control and related NPS problems in critical watershed areas throughout the State.

For your information, the Department of Health, Bureau of Water Pollution Control, has had an ongoing water quality management contract with the State Department of Agriculture for the past five years. The institutional mechanisms among the State Departments of Health and Agriculture, the State Soil Conservation Commission, the Soil Conservation Districts as the designated implementing agencies, and the working relationship with the Soil Conservation Service providing the technical expertise, would make a federal funding provision viable and workable for Utah in continued implementation

Honorable Robert T. Stafford
Page Two

of its NPS pollution control program. The State's Water Quality 305(b) Report, April 1982, clearly documents that a substantial part of the State's remaining pollution problems result from nonpoint and natural background sources.

Should federal funding become available through the efforts of your committee, the Departments of Health and Agriculture in our State are in a position to effectively utilize any funding which might result.

Your continuing interest and efforts in the National Clean Water Program are appreciated.

Speaking as Governor of the State of Utah, please enter this as testimony for the hearings of July 19, 1983.

Sincerely,

Governor

FORREST V. SCHWENGELS
STATE SENATOR
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—
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—
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The Senate
STATE OF IOWA
Sixty-Ninth General Assembly
STATEHOUSE
Des Moines, Iowa 50319

COMMITTEES
State Government Appropriations
Subcommittee, *Chairman*
Natural Resources, *Chairman*
Communications Review, *Chairman*
Appropriations
Energy Policy Council
State Government

To: Senator Robert T. Stafford and members of the Senate Committee on Environment and Public Works

Subject: Testimony on Non-point Pollution Control Program

I am pleased to have this opportunity to present some information and thoughts relative to the proposed Section 11 of the amendment to the Clean Water Act you are addressing.

I have taken the liberty of enclosing a number of documents dealing with Iowa's experience and solutions as back-up to this document.

The material I have enclosed is as follows:

1. Fiscal Year 1983 Non-point Source Pollution Control Program

This document lays out the Iowa Department of Soil Conservation's Fiscal Year 1983 program. The Iowa Legislature, in passing what is known as "Iowa Soil 2000", also passed a resolution which stated Iowa's goals for non-depletion of soil by the year 2000. This "Fiscal Year 1983 Non-point Source Pollution Control Program" is one of the Iowa Department of Soil Conservation's responses to those stated goals.

2. Implementation Strategy for Green Valley Lake Clean Lakes Project 1/

This document examines the implementation strategy for Green Valley Lake Clean Lakes Project. Sediment from the Green Valley Lake Watershed has reduced the lake area by about ten percent (10%). The document explores solutions to the non-point source pollution problems and methods for its control. The strategy development for this area is predicted to reduce sediment delivery by about ninety percent (90%).

3. Non-point Notes on 208 Implementation 1/

This document was abstracted from Iowa's Interim Output Report. It illustrates how agricultural non-point source pollution can be evaluated.

4. Prairie Rose Lake Narrative and 1982 Annual Report 1/

These documents give an overview of the Prairie Rose Rural Clean Water Project in Shelby County, Iowa. To date the sediment flowing into the lake has been reduced by forty-eight percent (48%).

5. Soil Conservation Incentive Programs in the North Central Region of the United States

This is a survey of the various states in the north central region and their soil conservation programs. This is an attempt to "pick the brains" of surrounding states to improve the Iowa program.

6. Chapter 467A, Iowa Code Soil Conservation Laws. 1/
7. Chapter 467B, Flood and Erosion Control. 1/
8. Chapter 467C, Conservancy Districts. 1/

1/ Retained in committee files.

Iowa has an important soil conservation program known as Iowa Soil 2000, run by the state Department of Soil Conservation. This program was established in 1980. It reflects a strong emphasis on education as the most effective way to spread the news of soil conservation. The educational tool promoted in this program is the conservation folder (Chapter 467A, Iowa Code, p. 11, para 6; 467A.62). The folder offers the vital information that a farmer needs to know to assess the present extent of soil erosion on his farm, suggests remedies that would control erosion, and states the technical and financial assistance available through the local conservation district. The folders should be in the hands of most landowners and/or operators within five years, by 1988 at the latest (copies of sample folders are enclosed in the packet).

The information is to assist the farmer in making an estimate of the amount of soil losses he has sustained. He is then able to choose from extreme terracing to no-till planting. In most cases the farmer can bring soil losses in line by conservation tillage methods.

This program seems popular with farmers in Iowa counties where the pilot program is now in progress.

Iowa has had good response to the development of the non-point source pollution program for watersheds. We have had measurable improvements under this program.

Our program has had good measurable results to date with the Prairie Rose Clean Lake Project, an EPA-funded project. A second lake project, Green Valley Lake, is now in the processing stage and data is being gathered.

Our publicly-owned lakes are also receiving state attention, and improvements in the size of fish populations has already been reported by our State Conservation Commission.

Iowa Code Chapter 467A is the part of the code which contains the 1980 update known as "Iowa Soil 2000". In addition to the farm folder the Iowa law: (1) requires a reduction of soil loss if the farm folder assessment indicates soil loss is above ten tons per acre: (2) allows county commissioners to go on land, inspect, and bring action if soil loss is causing damage on the property of others; (3) provides state legal defense in cases of suit against commissioners and provides for court action against landowners who, after repeated notice, fail to improve the property.

The law also addresses the urban non-point pollution by requiring contractors to meet the soil erosion limits on land-disturbing activity in both rural and urban areas (Iowa Code 467A.64).

As you see, Iowa has mandated activity related to soil loss. An important key to the acceptance of the program is, I believe, the fact that the State Department of Soil Conservation and the Federal Soil Conservation Service provide technical assistance and education through the use of the conservation folder, which is both an educational tool and a contract mechanism.

In addition, the mandatory provisions are in the future and tied to the ability of the districts to prepare and deliver the folders and the availability of cost share funds.

Iowa has taken the initiative as well on the clean lakes program. Of the 8.2 million appropriated, a percentage is used (in addition to Federal EPA funds) to provide seventy-five percent (75%) cost share in the watershed of public lakes, and no new lakes can be developed unless there is a commitment by property owners of seventy-five percent (75%) of the land in the watershed to maintain soil loss limits.

The following are options for the Congress to look at:

1. Continue cost share on projects based on small watershed development. (EPA)

2. Provide tax credits for soil conservation cooperators to be taken over a period of years (five years). (EPA, SCS)

3. Establish a point system which would give a priority on some federal programs to those landowners who have substantial land at/or below soil loss limits by whatever means. (EPA, SCS)

4. Require each state that receives federal funds to establish 5, 10, 15, 20 year goals and a strategy for accomplishment that is statutory. (EPA, SCS)

6. Establish an effective task force to coordinate the non-point pollution implementation program. Include personnel from EPA, SCS, state soil conservation or natural resources departments, state legislators, and federal agencies with surface and groundwater data base responsibilities.

I thank you for allowing me to submit these points I consider worth addressing. If I can be of additional assistance, please call on me.

Forrest V. Schwengels
Iowa State Senator

FISCAL YEAR 1983 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

OVERALL OBJECTIVE

The objective of the Fiscal Year 1983 nonpoint source pollution control program is to continue to develop the incentives, regulations, legislation, special projects, and public support required to implement the nonpoint source pollution control program outlined in Iowa's Statewide Water Quality Management Plan, 1979 as amended by the Five-Year Strategy Revisions adopted in August, 1982.

A. General Control Program

To work toward meeting the overall objective of nonpoint source pollution control, the Department of Soil Conservation (DSC) will be conducting the following activities in federal fiscal year 1983.

(1) Green Valley Lake Clean Lakes Project: DSC staff will continue to assist the Iowa Conservation Commission and the Union County Soil Conservation District in administering the Green Valley Clean Lakes Project. Specific activities include (1) developing annual and seasonal cost estimates for construction, (2) allocating matching state funds from the publicly owned lakes program, and (3) preparing quarterly progress reports.

(2) Publicly Owned Lakes Program: DSC will assist the Iowa Conservation Commission in developing and maintaining the list of lakes eligible for state cost-share funds under the Publicly Owned Lakes Program. An evaluation will be made of the lakes on the list to determine the feasibility of implementing soil conservation practices

in the watersheds. Recommendations will be made for retention or removal from the list. Similar evaluations will be made for proposed additions to the list. The evaluations will be coordinated with appropriate County Soil Conservation Districts.

(3) Soil Conservation Incentives: DSC will compile information on soil conservation incentive programs that have been adopted by other states located in the North Central Region of the United States (using regional boundaries established by Center for Agricultural Development, USDA). The compilation will include, but not be limited to, cost-share programs, tax incentives, and low interest loan programs. A report will be prepared summarizing the incentive programs of North Central states. The report will be distributed to appropriate state legislators and/or legislative committees.

(4) Funding for Watershed Projects: DSC will determine the availability of funds from various federal and state programs for funding nonpoint source pollution control projects in the watersheds of high priority waters. Programs to be included in the evaluation are USDA's Experimental Rural Clean Water Program, EPA's Clean Lakes Program, and Iowa's Financial Incentive Program. If the evaluation indicates that funds are available, or are likely to become available, DSC will identify appropriate projects for implementation and will develop and submit (or assist other agencies to develop and submit) applications for funding.

(5) Land Disturbing Activities: DSC will evaluate the progress made and identify problems resulting from implementation of Section 467A.64 of Iowa's Soil Conservation Laws. This section requires an affidavit be filed with a soil conservation district prior to initiating a land disturbing activity, stating that the proposed activity will not exceed established soil loss limits.

If a political subdivision has adopted an appropriate sediment control ordinance, the affidavit can be filed with the political subdivision or its authorized agency.

The evaluation will sonsider the administrative procedures utilized by soil conservation districts and other political entities, in implementing the legislation, the technical and administrative workload requirements imposed on governmental agencies as a result of the legislation, and the extent of contractor compliance with the requirements to file an affidavit and to control soil erosion at construction sites. While some aspects of the evaluation will be conducted on a statewide basis, other aspects (such as an evaluation by selected districts or other governmental agencies of contractor compliance) will be conducted by looking at the situation found in a small number of counties which are considered to be representative of the range of construction activity found in Iowa.

A report on the evaluation will be prepared. It will contain the results of the evaluation, including identification of problems encountered in implementing the legislative requirements and recommendations for correcting problems found or improving the control process.

(6) Fiscal Year 1984 Work Activity Report: DSC will develop a report outlining the nonpoint source pollution control planning and implementation activities which DSC intends to conduct in F.Y. 1984. For each activity the report will indicate the expected product(s), the schedule for completion, the level of funding required, and the funding source.

(7) Sediment and Nutrient Loading Goals for Lakes: DSC will assist the Department of Environmental Quality (DEQ) in establishing sediment and nutrient loading goals for lakes under consideration for lake restoration and/or watershed control projects and in evaluating whether proposed projects are likely to improve long-term lake water quality.

B. PUPLIC PARTICIPATION

OBJECTIVE

DSC will continue to utilize the Conservancy District Advisory Committees (CDACs) and the County Resource Coordinating Committees (CRCCs) as advisory groups on nonpoint source pollution issues. DSC work efforts will include maintaining full committee membership, distributing materials, scheduling and attending meetings, and other associated administrative functions.

Public participation activities will be coordinated with other work elements and outputs of the nonpoint source program and committee meetings will be scheduled accordingly as needed. For planning purposes, a CDAC meeting is shown to be a work output by the end of each quarter.

C. AGRICULTURAL CHEMICALS

IN F.Y. 1982, EPA prepared a report on agricultural chemicals used in Iowa. This report provides information on current and projected use levels for each chemical, availability of monitoring data, and the water quality impacts of each chemical. In F.Y. 1983, information from the EPA report will be used to develop best management practices (BMPs) for those chemicals which have the greatest potential for polluting Iowa waters.

Based on information contained in EPA's report, those chemicals (or groups of chemicals) having the greatest potential to adversely impact Iowa water quality will be identified, the severity of the impacts assessed, and the cause(s) of the impacts identified and evaluated. Based on this evaluation, measures which can be used to reduce or eliminate the adverse water quality impacts will be developed. These measures will be evaluated in terms of effectiveness in reducing chemical movement into waters, practicality for use with normal crop production practices, and impacts on chemical effectiveness, crop yields, and production costs. A report outlining the results of these evaluations will be prepared and reviewed by the CDACs. Recommendations obtained as a result of CDAC review will be used to select those measures which will be identified as BMPs. These BMPs will then be incorporated into Iowa's Water Quality Management Plan.

Major portions of the development of BMPs for agricultural chemicals will be completed by the Iowa State University (ISU), through subcontract with DSC. ISU will evaluate the severity of water quality impacts for specific chemcials, recommend the chemicals for which BMPs should be developed, identify the causes of chemical pollution, identify and evaluate alternative control measures, and recommend which measures should be utilized as BMPs. DSC will review the ISU recommendations with the CDACs and will select the control measures which will be identified as BMPs for agricultural chemicals. DSC will coordinate this work activity with the Iowa Department of Agriculture.

D. MINING

In F.Y. 1983 DSC will review and evaluate the legislative authorities, regulations, and programs of DSC and other state agencies which pertain to regulation on non-coal mining activities in Iowa. The evaluation will be particularly concerned with the adequacy and efficiency of the regulations in protecting surface and ground waters from contamination. If it is determined from the evaluation that new or revised requirements are necessary and desirable, DSC staff will prepare such recommendations.

In completing the evaluation and in developing recommendations for changes, DSC will consult with and seek recommendations from other agencies that have responsibilities or authorities related to mining. DSC will also consult with mining industry representatives.

E. ECONOMICS OF TERRACING

Phase I of the Economics of BMPs study, which was initiated in F.Y. 1981, evaluated the economic impacts associated with implementation of alternative nonpoint source pollution control measures (BMPs) on typical farm operations for each of Iowa's major land resource areas. Both short and long range economic evaluations were conducted, including assessment of the direct costs incurred by landowners, economic impacts of land conversion necessitated by installation of control measures, effects of practices on crop yields, effects of necessary changes in farm management and operation, and long-range economic implications associated with preservation or depletion of the soil resource base.

In F.Y. 1983 an in-depth study will be conducted to further define both the short and long term economic impacts to individidual landowners of using terraces to control soil erosion and/or nonpoint source pollution. The study will determine the economic impacts of terracing for the range of soil types and soil productivity levels on which terrace construction commonly occurs in Iowa and will cover a range of terrace construction costs.

DSC will contract with the Center for Agricultural and Rural Development (Card), Iowa State University, to conduct major portions of this study.

A. PROGRAM ACTIVITIES

1.	Progress reports Green Valley Clean Lakes Project	End of each quarter
2.	Annual construction cost estimate Green Valley Clean Lakes Project	July 1, 1983
3.	Annual review of publicly owned lakes list	June 1, 1983
4.	Final report midwestern states soil conservation incentives	April 1, 1983
5.	Complete evaluation of potential funding of special watershed projects	January 1, 1983
6.	Final report on implementation of regulations for land disturbing activities	September 1, 1983
7.	Fiscal year 1984 nonpoint source pollution control program activity report	July 1, 1983

B. PUBLIC PARTICIPATION

1.	Confirmation of CDAC membership	October 1, 1982
2.	Completion of first quarter CDAC meeting	December 31, 1982
3.	Completion of second quarter CDAC meeting	March 31, 1983
4.	Completion of third quarter CDAC meeting	June 30, 1983
5.	Completion of fourth quarter CDAC meeting	September 30, 1983

C. AGRICULTURAL CHEMICALS

1.	Draft of DSC/ISU contract	October 1, 1982
2.	Final DSC/ISU contract	November 1, 1982
3.	Identify chemicals for which BMPs will be developed	January 1, 1983
4.	Draft report on alternative control measures for agricultural chemicals	May 1, 1983
5.	CDAC review	July 1, 1983
6.	Final report on selection of BMPs for Agricultural Chemicals	August 1, 1983

D. MINING

1.	Complete review of existing laws, programs, and regulations	February 1, 1983
2.	CDAC review	March 1, 1983
3.	Final report	June 1, 1983

E. ECONOMICS OF TERRACING

1.	Proposal for economics of terracing study	October 15, 1982
2.	Draft subcontract scope of work	October 30, 1982
3.	Final subcontract	December 1, 1982
4.	Draft report on economics of terracing	May 1, 1983
5.	Final study report	June 15, 1983
6.	Report on utilization of study results	August 1, 1983

SOIL CONSERVATION INCENTIVE PROGRAMS
in the
NORTH CENTRAL REGION
# of the
UNITED STATES

Prepared By

Iowa Department of Soil Conservation
Wallace State Office Building
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March, 1983

SOIL CONSERVATION INCENTIVES

The Department of Soil Conservation surveyed state agencies in the North Central Region of the United States that administer soil and water conservation programs. The "North Central Region", as defined for this survey, icludes Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and, of course, Iowa. The purpose of the survey was to obtain information on soil conservation incentive programs that have been adopted or considered by these states. More specifically information was requested for cost-share programs, tax incentives, low-interest loans, or any other incentive program that has been adopted or considered. Information on federal and local soil conservation programs was not solicited.

The following is a compiled summary of the information received. It relates to state programs as they existed on January 1, 1983 and is based upon our interpretation of the material provided. In addition, information on certain incentive programs that have been used in some other states is included. More detailed information about some of the programs is available in the Department of Soil Conservation.

The Department is distributing this report to agencies, organizations, special interest groups, and individuals that are interested in conserving Iowa's soil. Hopefully the report will be a stimulus toward generating new and viable soil conservation incentive programs in Iowa at both the state and local level.

ILLINOIS

A cost-share plan of $500,000 was approved in 1980 by the General Assembly and the Governor in the budget of the Division of Natural Resources (DNR). The program is devoted solely to conservation tillage practices. Eligible contractors (landowners or farm operators) enter into a contract with the Division of Natural Resources and the Soil and Water Conservation District (SWCD). The contract specifies the type of conservation tillage practice being used and a schedule of payment over a three year period.

SWCDs must establish priority areas. A SWCD may describe priority areas as those in the county that are highly erosive, close to streams, in a particular watershed, etc. A prospective contractor not in an established priority area must prove to the SWCD that he has a critical erosion problem. Cost-share monies can be allocated only to those contractors who are reducing their average annual soil loss: (1) by at least 50%, (2) to the SWCD's Guidelines. or (3) to the soil loss tolerance. One of these three criteria must be met by conservation tillage practices in conjunction with enduring structures and cropping patterns to be eligible for costshare contracts. The following summarizes Illinois' experience with their cost share program.

Conservation Tillage Cost-Share Program

In FY81 Districts and the DNR initiated and implemented the first State cost-share program. Of the $500,000 allocated to the Division of Natural Resources, 48 of the 98 Soil and Water Conservation Districts were selected with cost-share budgets ranging from $5,000 to $15,000. Eligible cost-share practices were conservation tillage practices such as zero-till systems and reduced tillage systems. Payments ranged from $10 to $25 per acre depending on the amount of crop residue remaining on the soil surface after planting.

This program was used as an education tool for farmers. Those already using a successful conservation tillage program were not eligible for cost-share.

Summary of Cost-Share Program

863 farmers received a cost-share payment
26,031 acres qualified for payment
14.2 tons/acre/year was average soil loss reduction
$1.21 cost/ton of soil saved
$17.28 cost/acre

	Soil Loss				Average	Certified	
	Before	After	Saved	Acres	Reduction	Payment	Cost/Ton
O-till	375,689.2	86,921.8	288,767.4	14,538	19.9	332,539	1.15
Reduced till	190,490.3	108,565.6	81,925.6	11,493	7.1	117,223	1.43
Total	566,180.4	195,487.4	370,693.0	26,031	14.2	449,762	1.21

	Average Soil Loss		
	Before	After	Saved
O-till	25.8	6.0	19.9
Reduced till	16.6	9.4	7.1
Total	21.8	7.5	14.2

Indiviual Agricultural Development Bond Program

The 1981 Illinois General Assembly created the Illinois Farm Development Authority (IFDA) on September 16, 1981. The purpose of this legislation is to assist eligible farmers in Illinois who are engaged in farming or wish to engage in farming to purchase agricultural land, agricultural improvements, and depreciable property. The powers of the IFDA are vested in and exercised by a board of seven members who are appointed by the Governor with consent of the Senate.

The "Individual Agricultural Development Bond Program - IADBP", can be used to finance the implementation of a soil or water conservation project which has been approved by the SWCD in which the farm is located. The IADBP is a tax-exempt bond program designed to help private lenders assist farmers in the State of Illinois to acquire agricultural property. The program provides a mechanism for private lenders to receive tax-exempt interest with respect to loans made to farmers. The private lender will arrange the loan and purchase from the Illinois Farm Development Authority a tax-exempt bond in the amount of the loan and secured by the loan and its collateral; the proceeds of that bond will be lent to the farmer and that loan and its collateral will be assigned to the private lender as security for the tax-exempt bond.

If a farmer meets the eligibility requirements as set forth by the IFDA, the decision whether to enter into the Loan Agreement is between the eligible farmer and the lender. They must agree on terms of the loan such as interest rates, length of loan, down payment, and repayment schedule.

An eligible farmer is defined as an individual with a low or moderate net worth ($250,000 or less). The IADBP loans may be used to purchase depreciable property, agricultural improvements, and land. The loan maximum is $100,000 for farm land. There are no maximum amounts for depreciable property or soil conservation programs.

"Risk-Share" No-Till Program

The Illinois Association of Conservation Districts conceived a "risk-share" no-till program. The idea received legislative approval for statewide application, but failure to fund the program killed the effort. Basically it was an insurance-type program that would pay farmers the difference in yields between a no-till experimental plot and their conventionally tilled fields.

Macon County Illinois Conservation District has implemented such a to-till program. Money to fund the program comes from donations garnered from the local agricultural industries. Free seed corn was donated for the no-till plots while dealers rent out the necessary equipment. Money is targeted to areas with the worst erosion problem. A technical committee assists the farmer with the 5- to 10-acre plots. Farmers are paid the difference in yields (up to $50 per acre) between the no-till experimental plot and their conventionally tilled fields. If there is no difference in yield, the farmer receives nothing. The program's intent is to give farmers risk-free, hands-on experience in their own field with no-till farming.

INDIANA

The 1981 Indiana General Assembly made available to the State Soil and Water Conservation Committee $400,000 of non-reverting funds to be used to initiate a conservation cost-share program in Kankakee River Basin in northwestern Indiana. This is the first endeavor on the part of the state to provide an incentive program for landowners and operators to install soil erosion control measures.

The State Committee developed rules and regulations for administering the program. The rules are so structured that a complete state-wide program could be administered.

The SWCDs play a major role in coordinating this cost-share program in their individual counties. The cost-share rate was set at 75% for practices designated by the State Committee. This is a maximum figure with the local SWCD given the flexibility to set a lower percentage cost-share rate and apply a maximum per landowner if so desired. The district is notified of the amount they are allocated. They then devise their own financial management scheme, within the State Committee's guidelines.

Indiana presently has no plans for tax incentives, low interest loans, or other soil erosion control incentive programs.

IOWA

Iowa Financial Incentive Program (IFIP) for Soil Erosion Control

In 1973 the Iowa General Assembly passed legislation that established a program through which state funds would be made available to landowners and farm operators to pay a part of the cost for the installation of soil and water conservation practices. On July 1, 1983 the state cost-share program or the Iowa Financial Incentives Program (IFIP), as it is called today, will have been funded for ten years. The overall objective of the IFIP is for the State of Iowa, through the Iowa Department of Soil Conservation (DSC) and Soil Conservation Districts (SCDs) to conserve our soil resource. The IFIP includes a number of program elements, all dealing with soil conservation. The elements of the IFIP include:

1. Voluntary Program
2. Mandatory Program
3. Publicly Owned Lakes Program
4. Iowa Till Program
5. No Till Program
6. Wind Erosion Control Incentive's Program
7. Special Watershed Projects
8. Low-Interest Loans
9. Summer Construction Incentives

The DSC has received appropriations for cost-sharing of soil conservation practices since 1973 for the Voluntary Program, the Mandatory Program, and the Publicly Owned Lakes Program. Since 1979 funds for the Iowa Till Program have also been included in the general appropriation. The Special Watershed Projects Program and Summer Construction Incentives were authorized in 1980 legislation, but no funds have been appropriated for these programs. In the 1979-81 biennium, 5 percent of the appropriation was used to provide incentives to landowners to practice conservation tillage as part of the Iowa Till Program. In the 1981-1983 biennium the SCDs were authorized to use up to 10 percent of their allocation to provide incentive payments to encourage no-till planting.

Over 41 million has been made available for cost-share since the program started in 1973. A total of $2 million was made available for each year of the 1973-75 biennium. Funding for fiscal years since has been: $2,500,000 for 1975-76; $4,000,000 for 1976-77; $4,230,000 for 1977-78; $4,720,000 for 1978-79; $5,000,000 for 1979-80; $5,979,400 for 1980-81; $5,374,348 for 1981-82; and $5,634,000 for 1982-83. In 1982-83, $69,500 is targeted for the Southeastern Iowa Conservation Tillage Research Project; $278,225 is set aside for the Mandatory Program; and $278,225 is allocated to the Publicly Owned Lakes Program. The remaining funds are allocated to the Voluntary Program.

Although the Wind Erosion Control Incentives Program is included in IFIP, it is not funded from the cost-share appropriations. State road use tax monies fund this program. Each year since 1979, $500,000 has been put into this program.

Voluntary State Cost-Share Program

Ninety percent of the state's conservation cost-share appropriation for IFIP is used to pay a portion of the cost of permanent soil conservation practice installed voluntarily by landowners. Under this program, state funds can pay not more than fifty percent of the installation cost of approved permanent soil and water conservation practices. To assure that the state cost share funds are fully utilized, DSC has established rules to allow unspent funds to be recalled from SCDs to be distributed to other SCDs which can utilize the funds.

Applications for cost-share funds are made at county SCD offices. The commissioners of the SCD review all cost share applications received and approve those which will be funded from the district's cost share allocation. A priority system adopted by the SCD is used to determine which applications will receive priority for funding in that district. Considerable variation exists between the priority systems of SCDs. Priority systems used include funding only certain practices, funding only those applications where construction is ready to proceed, and funding practices in priority watersheds of the county. The priority system adopted by each SCD can be reviewed at the SCD office.

The Department of Soil Conservation allocates these cost-share program funds to soil conservation districts by utilizing a formula based on the 1970 Conservation Needs Inventory. The allocation formula considers the percentage of the state's highly erosive acres in the district, and is contained in 780-5.51(1)e of the Iowa Administrative Code.

Mandatory Program:

Five percent of the state cost share appropriation is retained for cost-sharing with land owners or farm operators required to install soil erosion control practices by an SCD administrative order or a court order, where such order exists as a result of SCD action to abate soil erosion complaints filed under provisions of 467A.47 or 467D.23.

The rate of cost-share for permanent soil conservation practices installed as a result of an administrative court order is seventy-five percent of the total installation cost to the landowner. The rate of cost-share for temporary soil conservation practices is set by the State Soil Conservation Committee.

Any cost-share funds allocated to the mandatory program which remain unobligated at the end of a program year are reallocated to the voluntary state cost-share program.

Publicly Owned Lakes Program:

The percentage of the state cost-share appropriation which may be used for this program and the cost-share rate are specified by the legislative appropriation. Currently, five percent of the state cost-share appropriation is used to cost-share up to seventy-five percent of the approved cost of permanent soil conservation practices in watersheds above certain publicly owned lakes and reservoirs.

The cost-share funds of this program may only be used in watersheds or designated watershed areas located above those publicly owned lakes or reservoirs that are identified on a priority list established annually by the Iowa Conservation Commission.

The publicly owned lakes cost-share funds are allocated annually to the SCDs in which the priority lake and reservoir watersheds or subwatersheds are located. In making this allocation, DSC gives first priority to the funding needs of those lake watersheds where a commitment has been made to use state cost-share funds to match other public funds (i.e., Clean Lakes funds, ACP Special Project funds, etc.). For these projects, tha anticipated annual cost-share needs are determined and funds are allocated to the SCDs. Once this allocation has been made, the remaining cost-share funds are divided evenly between the remaining lakes on the priority list and allocated to the respective SCDs in which these lakes are located. To assure maximum use of these funds, DSC rules also establish procedures for recalling unspent funds and redistribution of these funds to SCDs which can use them.

As with the voluntary state cost-share funds, the responsibility for accepting and approving applications for these funds is assigned to the SCDs. In approving applications, the SCDs are to give priority to those areas of the lake watershed which are of highest importance due to soil erosion.

Iowa Tillage Program

The state cost-share appropriation for fiscal years 1979-80 and 1980-81 allows up to ten percent of the appropriation to be used for incentive payments for minimum or mulch tillage of row cropped land. The DSC established the Iowa Tillage Program to implement this provision of the appropriation bill.

In order to demonstrate the effectiveness of minimum or mulch tillage in controlling soil erosion and improving water quality, the rules governing the Iowa Tillage Program limit use of these funds to small watersheds where a substantial portion of the row cropped lands will be farmed in accordance with the Iowa Tillage Program requirements. DSC rules specify that the following criteria will be used in selecting the watersheds eligible for funding under this program: the watersheds selected by the State Soil Conservation Committee (SSCC) for funding shall be approximately 4,000 acres in size; the watersheds shall be uniformly distributed throughout the state; priority will be given to watersheds having the highest percentage of participation by row crop acres not previously tilled by a minimum or mulch type tillage system.

Soil conservation districts may annually nominate watersheds for consideration for funding under this program. From the list of nominated watersheds, the State Soil Conservation Committee selects the watersheds to be funded and establishes the amount of funds to be allocated to each watershed. Funds are then allocated to the SCDs in which the selected watersheds are located.

The SCDs are responsible for accepting and approving applications for the Iowa Tillage Program. Landowners who participate receive a one-time incentive payment of $30 per acre for farming in accordance with the Iowa Tillage Program requirements. Participating landowners are required to continue farming in accordance with the Iowa Tillage Program for a minimum of five years.

Any unspent funds from the Iowa Tillage Program are reallocated to the voluntary state cost-share program at the end of each program year.

A total of 14 districts participated in this program and paid incentives totalling $373,082.

No Till Program

In funding years 1981-82 and 1982-83, each of Iowa's 100 soil conservation districts had the option to use up to 10 percent of their allocation to provide incentive payments to encourage no-till planting. Twenty-eight districts provided no-till incentive payments during the 1981-82 funding year.

Wind Erosion Control Incentive Program (WECIP)

Section 312.2(9) of the Iowa Code allocates $500,000 annually to DSC from the road use tax fund for cost-sharing the installation of wind erosion control practices. Cost-sharing is limited to installation of practices in locations where wind erosion is currently interfering with maintenance of highways and safe operation of vehicles.

All SCDs may participate in this program. To participate SCDs, in cooperation with DOT officials and city or county engineers, identify road segments affected by wind erosion and nominate agricultural land areas to be considered for cost-sharing under the WECIP. The DSC commits funds to the SCDs for installation of wind erosion controls on eligible lands that have been selected by the SSCC for funding. Eligible wind erosion controls include conservation tillage, planting of grass strips, and establishment of field windbreaks.

The funds allocated from the road use tax fund remain available for use in the WECIP program until spent.

Special Watershed Projects

Section 467A.7 of the Iowa Code permits DSC to cost-share up to sixty percent of the cost of a watershed conservation project including five or more contiguous farm units which have at least five hundred acres or more of farmland, and which constitute at least seventy-five percent of the agricultural land lying within the watershed or subwatershed. Although legislative authority for this program has been given, no funds have been appropriated for the program.

Low-Interest Loans

Section 175.34 of the Iowa Code established in 1982 a soil conservation loan program to facilitate the implementation of permanent soil and water conservation practices and the acquisition of conservation farm equipment. The program is administered by the Iowa Family Farm Development Authority. Loan funds are obtained from the proceeds of tax-exempt bonds issued by the Authority and purchased by participating lenders. Any financial institution or entity authorized to make mortage loans or secured loans in the state may become a participating lender. There is no minimum amount for a loan under this program. However, the maximum amount of loans an owner or operator can receive in one year pursuant to this program is $25,000. Since the funds are tax exempt, the loans carry a low rate of interest.

Summer Construction Incentives

Section 467A.7, Code of Iowa, authorizes SCD commissioners to make incentive payments of up to 60 percent of the cost of establishing permanent soil conservation practices when construction of the project commences after June 1 but before August 15 of any calendar year. Incentive payments may also compensate for production loss of the area disturbed for construction of practices. Incentive payments can be made under this program only when districts are unable to commit all their state cost-share funds in the other programs. Therefore, this program has not been used.

KANSAS

The state of Kansas presently funds two programs that provide cost-share assistance for establishing structures to control soil erosion and to develop and improve the quality and quantity of the water resources. A summary of these programs follow.

State Assistance in Construction of Watersheds

A. Special state fund for cost-sharing assistance to watersheds in construction of detention and/or grade stabilization structures. (Non P.L. 566 structures.)

B. Funds appropriated will be made available to a watershed district for a structure included in its general plan on a state-local cost-share basis at the state contribution rate not to exceed 70 percent of the construction costs of the dam.

C. Funds will also be available for actual engineering, geologic investigations and inspection costs to a watershed district for a state cost-shared structure at a rate not to exceed 10 percent of actual construction costs.

D. Permit to construct each dam must be issued by the Chief Engineer, Division of Water Resources, State Board of Agriculture.

E. There are numerous special conditions that must be addressed in the watershed districts application that are part of the Commission's policy.

F. Appropriations started in FY 1977:

1.	Total state funding including current year	$4,057,000
2.	Number of structures funded to date	125

G. Appropriation for FY83 (July 1, 1982 to June 30, 1983) 675,000

Water Resources Cost-Share Program

A. Special state fund for cost-sharing to private landowners for the establishment of enduring structures (practices) to develop and improve the quality and quantity of Kansas water resources.

B. The maximum state cost-share rate is 80%. The commission's program consists of cost-sharing on the following:

1. Animal waste control facilities
2. Grassed waterway or outlets
3. Ponds
4. Terraces and diversions
5. Permanent vegetative cover on critical areas
6. Water recovery/reuse pits
7. Irrigation pits
8. Spring development, pipeline, trough, or tank
9. Livestock wells, pipeline, trough or tank
10. Grade stabilization structure (concrete)

C. Each conservation district establishes their program from the state program and based upon their local needs and priorities. They also establish their cost-share rate, not to exceed 80%. (Districts cost-share rate varies between 50% to 80% with the average being around 65%.)

D. The state appropriation amounts set aside for each conservation district on July 1, 1982 was based upon a point system derived from three criteria:

   1. The number of non-federal rural acres in each district.
   2. Water quality needs - erosion in district.
   3. Water quantity needs - precipitation rates and availability of surface and groundwater supplies.

E. The state appropriated $1,250,000 for FY83 (July 1, 1982 to June 30, 1983).

MICHIGAN

Michigan reported that they have not pursued cost-share incentives to any great extent and that a state cost-share program does not appear to be in the picture given Michigan's economy, policies of the Department of Agriculture, and the position of their association of districts.

Approximately 75% of Michigan's cropland is dependent upon artificial drainage. Drains become virtually non-functional in a short period of time due to upland erosion depositing sediment in the channels.

Michigan is working on proposed legislation which would revise their drain code to allow for establishment of conservation measures in drain projects. A provision in the proposed legislation would allow a farmer to earn credit toward his drain assessment by installing and maintaining upland conservation measures.

MINNESOTA

1980/1981 was Minnesota's second biennium for their cost-share program. Over $2.6 million was allocated to SWCDs for cost-sharing purposes. It is estimated that over 1200 landowners participated in the program this biennium and applied the following practices:

Erosion Control Structures	225
Stripcropping	425 acres
Terraces	325,000 feet
Field Windbreaks	750,000 feet
Animal Waste Control Systems	200
Diversions	16,000 feet
Stormwater Control Systems	180 acres
Critical Area Stabilization	125 acres

To assist Districts in the technical and administrative aspects of this program, grants were made to Districts for hiring technicians and administrative personnel. A total of $300,000 technical and $150,000 in administrative grants were provided.

The Minnesota Soil and Water Conservation Board Cost-Share Program is a District administered program. SWCDs apply to the State Board for funds. The Board then awards grants to the Districts based on the information contained on their applications and priorities identified in their long range plans. Upon receipt of the grants, District Boards are responsible for local administration. Districts are required to prepare Long Range and Annual Plans before cost-share monies can be allocated to them. Minnesota's 92 Soil and Water Conservation Districts requested nearly 13 million dollars in cost-share assistance money while only $3 million was available. The Pollution Control Agency, in their Water Quality Management Plan, and the Water Planning Board, in their Framework Water and Related Land Resources Plan, have recommended increased funding for the program.

Minnesota did not report on any other incentive programs that have been adopted or being considered.

MISSOURI

Missouri has very recently adopted a state-funded soil and water conservation cost-share program. The program is intended to provide financial incentives to landowners to install erosion control projects and practices they would not otherwise install. Only Soil and Water Conservation Districts indicating an interest in administering the cost-share program in their county will be eligible to participate. Interest is indicated by entering a Cost-Share Memorandum of Understanding between the District and the Commission. The supervisors then develop the District Soil and Water Conservation Cost-Share Program.

Funds authorized for cost-sharing on soil erosion practices through this program will be allotted to Districts in the following manner.

1. Fifty percent of the state cost-share funds will be divided equally among the participating soil and water conservation districts;
2. The remaining fifty percent of the funds will be distributed according to needs criteria developed by the commission. No funds will be physically transferred to the SWCDs. The allocations will be credited to the Districts, and will be the amount available to the Districts for obligating to landowners for conservation practices. Actual monies, however, will go directly to the landowner from the state.

A landowner may apply for and receive state cost-share assistance providing he is a cooperator with the District and has a conservation plan as approved by the District. Applications may only be made for practices included in the conservation plan and on the state eligibility list.

Cost-share rates for the state program shall not exceed:

1. Seventy-five percent (75%) of the actual approved costs of the eligible practice or of the the estimated average costs for the practice in the county, whichever is less; or,
2. The incentive rates established by the Commission for certain management practices on the eligibility list which have proven to be effective erosion control practices.

In no case shall the state cost-share rates for individual practices exceed the federally-funded cost-share rates for corresponding projects and practices at the local level.

When Missouri legislators drafted the Third State Building Fund, they felt preserving the soil was as important, to the welfare and prosperity of the state, as rebuilding roads. Constitutional Amendment #1 passed in 1982 authorized the sale of bonds, the funds from which would be used for improvements to state buildings and property, for stormwater control, for water pollution control, for transportation projects, and for soil conservation grants. A $600 million bond issue for the state of Missouri was approved by the voters in a special election on June 8, 1982. For soil conservation, the passage of the bond issue means increased funding for the state cost-share program. Constitutional Amendment #1 specifically states that a certain percentage of the bond funds (equal to $23.94 million over a five-year period) shall be appropriated to fund the cost-share program. Now, a year later, bond sales have contributed $3 million toward the newly created Missouri State Soil and Water Cost-Share Program.

The Missouri Department of Agriculture (MDA) has a Capital Improvement Loan Program for Soil Conservation Practices. The MDA sets aside $1 million of the Agriculture Emergency Fund (AEF) for the specific purpose of assisting young and beginning farmers in the practice of soil conserving measures. Due to the geographical location of County Agriculture Stabilization and Conservation Service (ASCS) offices, their ready availability to farmers and their proximity to county government offices, these offices assist MDA in their loan program for soil conservation capital improvements.

The criteria for a loan from MDA for soil conservation practices are:

Maximum age of borrower	35 years
Maximum loan to any one borrower	$15,000
Minimum loan to any one borrower	$ 2,500
Maximum term of loan	15 years
Interest rate	11 percent

Borrowers must have an approved soil conservation plan for his entire operation.

Missouri does not have any tax incentive programs that are specifically for soil conservation. They do have a sales tax exemption for farm machinery, repair parts, feed additives and fuels used directly in producing farm products. Conservation tillage equipment would be exempt from sales tax.

NEBRASKA

Nebraska initiated a cost-share program in July, 1978. Based on legislation enacted in 1977 and funded in 1978, the Nebraska Natural Resources Commission became the developer and administrator of the Nebraska Water Conservation Program. Appropriations have been as follows:

July, 1978 - $ 500,000
July, 1979 - $ 850,000
July, 1980 - $1,100,000
July, 1981 - $1,100,000 reduced to $1,067,000
July, 1982 - $1,067,000 reduced to $1,045,660

The program is limited in that only six practices are eligible for cost-sharing. They are Terrace Systems, Terrace Outlets, Impoundment Dams, Grade Stabilization Structures, Irrigation Re-Use Pits, and Diversions. Payments are made by the state directly to the landowner on the basis of 75% of average ACP costs or 75% of actual costs, whichever is less.

The Nebraska Natural Resources Commission also administers a program called the Resources Development Fund. In this program local governmental entities offer proposals and plans for cost-sharing funds to build projects that have regional impact and identifiable public benefits. The program was established by legislation in 1974. Funding to date is $14,111,800. The projects can be funded with a grant, a loan or a combination loan and grant.

A new law was enacted in 1981, Section 2-4201-4301. This law allows bond issues for the purpose of making conservation loans. The Nebraska Association of Resources Districts would be administratively responsible. No action to implement this legislation has been taken to date.

The Natural Resources Districts have designated funds for cost-sharing with landowners for conservation practices. Since 1976 they have expended $3,340,569. Their combined budget for land treatment practices in fiscal 1982-83 is $1,615,385. Natural Resource Districts generate their budgets by using their authority to levy a tax of up to one mil on the property in their area.

Through an agreement with the state's natural resource districts, the Nebraska Game and Parks Commission pays farmers 75% of the cost of establishing an SCS-approved cover crop on marginal farmland under the Nebraska Wildlife Habitat Program. The remaining 25% is covered by the resource district which also pays farmers an additional $50 per year, per acre for planting a permanent non-grazed foliage. The Nebraska Game and Parks Commission will be spending $800,000 on this program in 1983. This represents about a third of the money collected by the Nebraska Game and Parks Commission each year from their $7.50 hunting stamp.

NORTH DAKOTA

North Dakota

North Dakota has drafted legislation that would for the very first time give Soil Conservation Districts the authority to levy a tax. The proposed legislation will be introduced to the Forty-eighth Legislative Assembly of North Dakota. The bill as drafted would authorize the supervisors to make a tax levy, not exceeding two mils, for the payment of the expenses of the district, including mileage and other expenses of the supervisors, and technical, administrative, clerical, and other operating expenses. Whenever the supervisors of a soil conservation district deem it advisable to raise funds by taxation in excess of the levy provided by this section, for any purpose for which the supervisors of a district are authorized to expend moneys raised by taxes, the supervisors of the district shall submit to the qualified electors of the district the question of increasing the levy by a certain number of mils. The increase must be approved by a majority of the qualified electors of the district.

OHIO

Senate Bill 160 passed by Ohio General Assembly in 1969 established a state cost-share program. The program is administered by the Ohio Soil and Water Conservation Commission and the Ohio Department of Natural Resources in cooperation with local soil and water conservation districts.

Practices that are eligible for state cost-sharing are stream channel stabilization, erosion control structures, vegetative filter strips, grassed waterways, collector tile mains paralleling the stream bank, tile outlet pipes, diversions, floodwater detention facilities, and wildlife habitat improvement.

Cost-sharing funds have been traditionally used for group projects for works of improvement on open drains. Cost-sharing ranges from 25% for tile main collectors and 40% for grade stabilization structures, to 100% for wildlife habitat improvement.

Funds are appropriated by the General Assembly every two years as part of the State's Capital Improvement Bill. No funds were appropriated for the cost-share program by the last General Assembly because of the poor financial status of the state.

State legislation enacted in 1978 established an agricultural pollution abatement cost-sharing program. The program was established to control pollution of public waters by animal wastes, sediment, and sediment associated materials. It is administered by the Division of Soil and Water, Ohio Department of Natural Resources and local Soil and Water Conservation Districts.

The State, through the Division of Soil and Water, will pay seventy-five percent (75%) of the cost of establishing eligible practices up to five thousand dollars per person. If other public funds are involved in cost-sharing an eligible practice, State funds can be used only to the extent that the combined public funds amount to seventy-five percent of the cost or five thousand dollars whichever is smaller. The five thousand dollar limit may be waived by majority vote of the Ohio Soil and Water Conservation Commission. For Division enforcement of the animal waste program by administrative order, 75% cost-sharing must be available. There is no enforcement associated with agricultural sediment.

Practices eligible for cost-sharing are limited to those requiring a capital investment which provides primarily public benefit and little, if any, benefits to the landowner. Specific practices that qualify for state cost-sharing are animal waste facilities, terraces, contour strip cropping, grassed waterways and outlets, field windbreaks, critical erosion area stabilization, diversions, grade stabilization structures, and buffer strips.

The program is funded through the state general fund at $225,000 per year for this biennium.

SOUTH DAKOTA

South Dakota does not have a state cost-share program.

South Dakota's conservation district law established a revolving loan fund of $125,000 which is used by the districts to purchase equipment and, in some cases, trees. Loans from this fund are administered by the State Conservation Commission and are interest-free.

The South Dakota Department of Agriculture has just initiated a special loan program to districts through their Rural Development Program. These loans to districts are intended to help districts purchase minimum-till or no-till equipment for rental to district cooperators. The idea is that cooperators will be more willing to invest in the equipment after they have had an opportunity to try it out. No loans have been granted, but several applications are being prepared. The districts will be charged interest on the loans (the Division of Conservation believes the interest rate will be ten percent).

WISCONSIN

The Department of Agriculture, Trade and Consumer Protection (DATCP) is the central agency of the state for setting and implementing state soil and water conservation policies and administering the state's soil and water conservation programs. The DATCP is advised by the Land Conservation Board in setting policies and carrying out programs; however, the department alone has the final responsibility and authority for these programs. In conducting programs, the DATPC must coordinate its activities with the state's nonpoint source water pollution abatement program, the inland lake protection and rehabilitation program and other related programs administered by the Department of Natural Resources. This administrative arrangement is based on Wisconsin's new soil and water conservation law that became effective July 1, 1982.

State cost-share funds administered by DATCP can be used for personnel and associated costs; for materials and associated costs necessary in the planning, application, repair or maintenance of conservation measures; for equipment; and for educational materials. Cost-sharing is authorized for any rate up to 75% of the total cost of the proposed project. The current appropriation for this fund is $464,600 for the 1982-1983 fiscal year. $688,000 is requested for fiscal year 1983-1984. By state board policy these funds require a 50% match for counties to use and are limited to personnel only because of the small amount.

For fiscal year 1983-84, the DATCP is requesting $180,000 for up to 75% state match for counties to conduct erosion control planning. In addition, $600,000 has been requested for implementation of county erosion control plans at the 75% state cost-sharing. These progrsms were not funded during fiscal year 1982-83.

The Department of Natural Resources administers the non-point source pollution abatement program. They currently receive $200,000 for the department to plan and administer the program, $135,000 for counties to administer the programs locally and $3,800,000 for cost-sharing with landowners for approved practices basically at the ACP cost-share rate.

Wisconsin has a farmland preservation program administered by DATCP which provides about $20 million in tax relief for farmers but the conservation component is weak. Counties can require conservation on such farms at county option. This program has a complicated formula to determine property tax credits which a farmer files from state income tax forms.

OTHER INCENTIVE PROGRAMS

Kentucky's Equipment Revolving Fund Program

Kentucky's "Equipment Revolving Fund Program" was established by the 1948 General Assembly to provide loans to Kentucky's conservation districts for heavy earth-moving equipment to do conservation work. The districts, through a loan-lease agreement with local contractors, pay off the individual loans over a period of time not more than 36 months. As revenues from loan payments are received new loans are made.

The program had an initial appropriation of $400,000 and has received three additional appropriations by the General Assembly for a total appropriation of $1,850,000. Over the 34 years that the loan program has been in existence, 1,075 loans have been made totalling $28,145,113.64. To date the total loan fund is $2,579,922.39, including accumulated interest.

The equipment revolving fund has meant a great deal to Kentucky's farming and conservation programs. It has enabled conservation districts to obtain the equipment necessary to construct proper conservation measures when needed.

Montana District No-Interest Loan Program

Montana's Rosebud Conservation District will initiate a no-interest loan program next year to help finance county soil and water conservation projects. The district's program will be the first county conservation loan program in the state. By January 1983, the district supervisors will have the program guidelines finalized and will begin taking loan applications.

The supervisors now plan to offer $10,000 or $20,000 loans with a five- and ten-year pay back, respectively. While there will be no interest on the loans, the district plans to have a 3% closing and administration charge. The Rosebud CD will offer about $100,000 in 1983. The district is funded by a one and one-half mill tax on real property, land, and building improvements within the county. The one and one-half mill levy is the maximum Montana conservation districts are allowed to receive under state law. Once the loan reaches $500,000, the supervisors intend to reduce the funding request from the county to one-quarter to one-half mill.

Agricultural producers in the district who have conservation plans will be eligible for the no-interest loans. The district supervisors will determine whether an individual will receive loan funds based on a need and feasibility determination by the Soil Conservation Service. The Rosebud CD is expected to use the loan program as one way to achieve the priorities listed in their long range plan. These include conversion of open ditches to pipelines to increase irrigation efficiencies and reduce weed problems, erosion problems, and reduction of canal and supply ditch seepage.

Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

July 28, 1983

The Honorable Robert Stafford
The United States Senate
Hart 133
Washington, D.C. 20510

Dear Senator Stafford:

This letter will serve to express the concerns and recommendations of the State of Illinois for the record of the supplemental hearings on the nonpoint source management provisions of S. 431.

We are providing this testimony under our joint signatures to stress the importance we place in Illinois on implementation of the nonpoint source program, especially with respect to agricultural activities impacting the State's water pollution control program. We believe that Illinois has successfully addressed the original intent of the Clean Water Act (Sections 208 and 303) to enhance State and federal efforts to control nonpoint source pollution.

Please find attached a copy of the latest update of the Illinois Water Quality Management Plan. We are particularly proud of this updated plan in that it consolidates into a unified statewide framework previously fragmented and cumbersome Areawide and State water quality management plans originally approved by USEPA pursuant to the provisions of Section 208(b).

In addition, please find attached summary statements explaining the water quality management planning process and program in Illinois, and the agricultural nonpoint program in particular. This information is provided to clearly demonstrate that our plan has been codified into an action program that is currently in operation and impacting water quality in Illinois. In other words, our plan has not been relegated to some dusty shelf for which entirely new legislative mandates are necessary to get the ball rolling again. We can, however, see a constructive role for new legislation which enables progressive states to build upon past accomplishments. To this end, we have also provided our recommendations for addressing nonpoint sources in S. 431.

We would be pleased to submit any additional information the Committee may desire or address any questions regarding the water quality management program in Illinois.

Very truly yours,

Richard J Carlson
Richard J. Carlson
Director
Illinois Environmental Protection Agency

Larry A. Werries
Larry A. Werries
Director
Illinois Department of Agriculture

RJC:RAK:ja

Attachments

cc: Senator Chafee
Senator Percy
Senator Dixon

ILLINOIS RECOMMENDATIONS FOR NONPOINT SOURCE MANAGEMENT PROVISIONS OF CWA

1. The need for nonpoint source control programs - We support a renewed national emphasis upon the need for nonpoint source pollution control. In Illinois, there is definitely a demonstrated need for a cost-effective mix of point and nonpoint source control measures in order to achieve water quality management goals. We welcome reasonable and fiscally responsible enhancements of the nonpoint source program since the timing is ripe for a meaningful demonstration of national committment to this aspect of the clean water program. We feel confident we have gained very valuable understanding of our nonpoint problems via the original 208 planning process. Further, we have already moved forward at the State and local level to advance from planning to modest but steady implementation of some aspects of the nonpoint source control program.

2. Use of State WQM Plans - New legislation for control of nonpoint sources should constructively build upon the base provided by certified and approved WQM Plans developed by the States pursuant to Section 208. Proper recognition and use of these plans can greatly expedite the process of implementing nonpoint source control in those States that successfully complied with the original planning provisions of the CWA.

3. Mandatory requirement for implementation programs - There is a strong agrument for approaching the implementation of nonpoint source control programs in a phased fashion. Based upon our experience with previous planning efforts, there is a wide diversity of State and local approaches to nonpoint source management in terms of types of problems addressed, nature of control strategies (voluntary versus regulatory), and degree of funding support. In view of this range and variability, a new national initiative should be focused upon incentives, such as funding assistance for on-the-ground projects or even established regulatory programs, as a logical first phase. These incentives could serve as a practical tool for generating the vital initial momentum for enhanced State and local attention on nonpoint source management and still provide valuable time for sorting out more long range program directions and strategies. Following this phase, in concert with the States U.S. EPA would be better positioned to fine-tune the overall nonpoint program including taking steps towards more exensive mandatory requirements where shown to be necessary. Such a phased approach would also coordinate more effectively with the final evaluation of the several pilot national programs under Section 208 such as the National Urban Runoff Program.

4. Funding assistance for implementation - Such assistance can have a positive impact at this time. We would stress that practices and projects, technical assistance and education activities should all be considered as viable candidates for federal cost-sharing funds. We have been consistently pleased with the very positive results which can be achieved by providing for hands-on assistance in the agricultural arena. With respect to practices and projects, there are existing gaps in total program coverage from other areas for which new cost-sharing funds would result in direct benefits for water quality in Illinois. We mention "steep" slope, marginal farm lands as one example. Some consideration should also be given to gradual phase-in of the assistance authorizations/appropriations to account for start-up time, etc. Along these lines, we feel that hard lessons learned from the federal wastewater construction grants program are relevant to the nonpoint program as well.

5. U.S. EPA oversight and review - In our experience, U.S. EPA was often placed in very difficult policy and technical positions under the original provisions of Section 208 of the Act. Whereas the point source program usually involved rather well defined and traditional intergovernmental relationships and control mechanisms, the nonpoint source planning effort often addressed a whole new array of such relationships and related technical issues. We believe the sudden imposition of a new mandatory program for nonpoint sources with broad review discretion for U.S. EPA could lead to a very chaotic, inconsistent pattern of decisions and program results. In other words, the "rules of the road" for nonpoint sources are so ill-defined at this point that sound reasoning cries out for some application of the general principles of "reasonable further progress" under workable time frames. We greatly fear that to do otherwise will subject U.S. EPA and probably the States as well to unwarranted, post-audit condemnation for failure to achieve what was undoable from the onset.

SUMMARY
OF
ILLINOIS WATER QUALITY
MANAGEMENT PLANNING PROCESS

Introduction

The current Illinois Water Quality Management Plan is an operating part of the overall water pollution control program administered under the Clean Water Act and related state law. This Plan covers programs for control of both point and nonpoint sources of pollution. The existing program is responsive to the resource analyses, findings and recommendations of the initial State and Areawide Water Quality Management Plans developed pursuant to Section 208 of the Act. These plans recognized the significance of nonpoint source pollution and recommended action programs to control these sources where necessary. This included identification of those areas where nonpoint source control programs could act in concert with established point source control initiatives. This linkage evolved in three phases.

Phase I Basin Plans, prepared in 1976 under Section 303(e) authorization, identified the categories and extent of nonpoint source pollution which guided efforts resulting in the certification and approval of Phase II water quality management plans for three designated areawide planning agencies and the State in 1979. Since 1979, Phase III work has been conducted with Section 208 and 205(j) funds and extensive progress made towards the careful integration of this type of planning activity into the on-going water pollution control program base.

The major focus of current water quality planning and program efforts is to continue to provide a transition from planning to implementation. The principal guiding policy is the refinement of current programs and authorities to respond to the problem of nonpoint source pollution control. The Continuing Planning Process (CPP), as defined in Section 303 of the Clean Water Act, is the overall mechanism used in Illinois to accomplish this transition.

The Continuing Planning Process for Water Quality Management

The Federal Water Pollution Control Act Amendments (FWPCA) of 1972 established a series of related programs for setting water quality standards, constructing municipal wastewater treatment plants, issuing permits for wastewater discharges, enforcing discharge permit conditions and establishing a broadly based planning process for water quality management (WQM). The WQM program is oriented towards implementation of abatement strategies for the control of point and nonpoint sources of pollution. The purpose of the CPP is to define the framework to target resources toward both these problem solving approaches. The process provides for the following:

1. Continuity between the annual program plan and longer term direction.
2. Transition between program base elements and new initiatives.
3. Technology/institutional approach assessments.
4. Intermedia program interface.
5. Mechanism to identify and assess conflict resolution needs.
6. Local, State and Federal coordination.

As a result of Phase I Basin Plans and Phase II Water Quality Management Plans, the following pollution control problems were identified as the basis for planning and program refinements with the context of the CPP:

1. The Illinois Pollution Control Board water quality and effluent standards are based on fixed levels of various contaminants. The present standards were not developed with nonpoint pollution sources in mind. A program has been initiated to examine the levels of protection of water quality needed to support indigenous aquatic communities as well as present or future cultural uses of waters of the state.

2. The initial WQM planning program provided an examination of the urban stormwater problems in eight nondesignated area Standard Metropolitan Statistical Areas (SMSA) and in the Chicago designated area. While some recommendations were given in the initial Section 208 plans, it was not possible to fully address urban stormwater problems at that time. Subsequently input from the National Urban Runoff Program (NURP) is being integrated into Illinois programs now that the results are known. Urban runoff continues to be a problem area.

3. Past water quality assessments have indicated ground water inflow to streams as a possible significant impact on surface water quality. Although ground water data have been collected in the past, this data has not been centralized. Work done in the Phase III portion of the WQM program compiled data so that adequate problem assessments could be completed in certain areas of the state. Priority ranking of these areas, based on susceptibility to both point and nonpoint source inputs, is the next major step for this portion of the WQM Program.

4. In the public participation efforts of the initial planning process, citizens identified a strong desire for lake water quality protection and restoration for both recreational and public water supply uses. The State has developed an adequate base of chemical and physical lake data. Provisions for technical assistance and implementation of restoration and water quality protection programs are needed.

5. The predominant nonpoint problem associated with agriculture was identified as soil erosion and sedimentation in WQM studies. Other problems include fertilizers and pesticides tied to soil erosion and small livestock feedlots. Of nonpoint source problem areas identified during the initial planning process, the majority of the work conducted during Phase III was devoted to agricultural nonpoint problems. Although significant progress has been made towards controlling soil erosion through cooperative agreements with agricultural agencies, there are inherent limitations in these efforts. The major limitation is the tendency of agricultural agencies to gear soil erosion control efforts primarily towards the maintenance of soil productivity rather than the protection of water quality.

6. Little effort had been devoted to the examination of the quantity/quality relationship in water management. It is known that quantity considerations apply to standards determinations, lake management, ground water availability, and public water supplies. Therefore, some future WQM efforts need to be directed toward addressing this relationship. Additional expenditures are needed to ensure the incorporation of environmental concerns into traditional engineering designs.

7. Drainage from coal mining areas has long been identified as a significant problem in the southern portion of the state. Arrangements under the federal Surface Mining Control and Reclamation Act have become clear allowing the opportunity for some water quality issues pertaining to mining to be included in this program. However, the problem of water quality degradation from orphaned mined lands still remains.

8. Other non-point source water quality problems to be addressed in Illinois include non-coal mining, construction erosion, hydrographic modification, residual wastes and oilfield brine. While many sources of pollution have been defined and methods of control determined, the ability to effectively integrate these results into a feasible control program for any specific watershed must be addressed. The capability to develop optimal technical and institutional solutions for both point and all nonpoint sources is essential.

As part of the continuing planning process, the Agency consolidated approved State and Areawide WQM Plans in order to maintain the momentum of the Section 208 program. This consolidated State and areawide plan called the "Illinois Water Quality Management Plan" serves as the focal point for the continuing process of water quality management planning in the State for both point and non-point sources.

Follow-on to Section 208 Planning in Illinois: A Transition to Implementation

The State of Illinois had actively participated in the water quality management (WQM) planning process, as characterized by Section 208, since the first expenditure of funds under this program in 1975. Between the federal fiscal years of 1976 and 1981, over 20 million dollars was committed to this process in Illinois. With the cessation of funding for

Section 208, the Illinois EPA was faced with several critical decisions with regards to the water quality management planning process in place in Illinois.

Over the past several years, the Agency had been preparing for the continuation of water quality management planning activities upon the completion and phase out of Section 208 sponsored activities. Proposed transitional and follow-on WQM planning activities were predicted on the belief that a certain continuity should be maintained between former Section 208 initiatives and those tasks which could be in part supported by Section 205(j) funds. This included identifying ways in which the current WQM planning process could be directly merged into daily water pollution control program activities.

Several types of activities were proposed for Section 205(j) funds based on this assumption. One of these activities involves areawide WQM planning agency support for Agency water pollution control programs. During the past calendar year, the Agency has made a concerted effort to review and consolidate existing State and Areawide WQM Plans. This consolidation and revision process served to anchor future WQM planning activities under Section 205(j) to program needs in relation to the NPDES, Construction Grants, water quality assessment and non-point control activities. The objective was to establish a series of activities which support, in an operational fashion, on-going water pollution control activities.

During the first transitional year, the three currently designated water quality management planning agencies, are involved with Section 205(j) funded activities on a direct contractual basis. This is in line with the orderly development of a water quality management planning program supported in part by the involvement of these types of organizations. The basic nature of areawide WQM planning support centers on WQM Plan consistency reviews, conflict resolution related to consistency reviews on NPDES permits, construction and operation permits and Construction Grant issuance as well as a series of special water quality assessments. These special assessments include continued oil field brine damage investigations, groundwater resource inventory and evaluation and continued review of urban runoff impacts on Lake Michigan water quality.

The overall planning process has supported base information, problem assessment, strategy development, transfer programs, and implementation initiatives. Continued efforts will be made to further address major problems of point and agricultural non-point source pollution. In addition, emphasis is being made to further address problems on a regional and local basis and provide adequate support to facilitate problem resolution.

The Illinois Water Quality Management Plan

The consolidation of State and areawide WQM plans provided the following benefits from both a state and local perspective by:

1. Providing a concise compilation of pertinent data needed in consistency determination for grant and permit issuance;
2. Formating existing WQM plans into a standard style to simplify their use and eliminate unnecessary information or support documentation;
3. Clearly specifying roles and responsibilities of designated management agencies;

4. Establishing a simple routine process to update and amend the WQM plan through the use of DWPC's Annual Program Plan;

5. Incorporating water quality mangement considerations into base program (Sections 106 and 205(j)) activities and;

6. Defining the minimum water quality management planning requirements for plan continuity.

The consolidating of State and areawide WQM Plans was undertaken in two distinct parts. Part of this effort has entailed the development of a document entitled 208 Planning in Illinois. This report contains abstracts for all FFY 1977 through 1981 projects completed with WQM planning funds by the respective State or areawide planning agency. This provided a convenient compilation of 208 work activities and facilitates information transfer among interested parties. The second part of this effort was the consolidation of the State and areawide plans themselves.

The purpose of integrating the Illinois Water Quality Management Plan (IWQMP) within the overall program was to consolidate and streamline portions of approved State and Areawide WQM plans in order to facilitate their usage in the operations of all designated WQM agencies. The WQM Plan represented a joint effort by the four agencies with WQM planning responsibilities. The four agencies involved were: Illinois Environmental Protection Agency, Greater Egypt Regional Planning and Development Commission (GERPDC), Northeastern Illinois Planning Commission (NIPC) and the Southwestern Illinois Metropolitan and Regional Planning Commission (SIMAPC).

There were several reasons which promoted the unifying of existing state and areawide plans. The first was the need to compile existing WQM plans in a convenient administrative format. At the state level, there was a need to improve the process of WQM Plan consistency review for NPDES permit or Title II Construction Grant determinations. For local officials there was a need to clearly define designated management agency responsibility and highlight recommendations for future action. This was a necessary step in the continuing process of WQM plan implementation.

A second reason for WQM Plan consolidation was to provide an orderly transition from plan development to implementation of programs. There has been a considerable public investment to establish credibility in the process Section 208 created, both from a planning and implementation standpoint. The cessation of funding for Section 208 WQM planning had resulted in the need to incorporate this planning process into the ongoing Agency water pollution control program.

Annual updates and amendments to the Plan are published in the Illinois EPA's Division of Water Pollution Control Program Plan. The Program Plan serves as a vehicle to circulate and document Plan changes. The amendment process for point sources is conducted in accordance with the adopted "Procedures and Requirements for Conflict Resolution in Revising Water Quality Management Plans", which are part of the Illinois Administrative Code.

The following pages contain a brief synopsis of the continuing policies and recommendations found in the Illinois Water Quality Management Plan.

Chapter Two -- Point Source Control: Control of point sources in Illinois is provided through the regulatory structure established by the Illinois Environmental Protection Act (Act) and subsequently through the Illinois Pollution Control Board (Board) Rules and Regulations. The emphasis of the Illinois WQM Plan for point sources is directed specifically towards NPDES and construction grant determinations and their conformance with the Illinois WQM Plan. From a statewide perspective, the control of point source discharge is a necessary component in a comprehensive strategy for water quality management. The primary responsibility for control of point sources is shared between the State and local designated management agencies.

- The emphasis of the WQM Plan is to ensure that those State and local programs involved with point source control are carried out in an efficient and effective manner.
- It is the primary responsibility of the State to ensure that the process of construction grant award, NPDES permit issuance and compliance monitoring are undertaken in accordance with all applicable state and federal requirements. The issuance of new NPDES permits constitutes an amendment to the approved WQM Plan.
- Local designated management agency are primarily responsible to ensure the quality of its effluent, the efficient provision of service within its facility plan area, the effective enforcement of applicable sewer use and pretreatment ordinances as well as the encouragement of water or energy conservation strategies (as appropriate). Facility plans should be implemented by local designated management agencies as approved by Illinois EPA. Amendments to these plans should be conducted in accordance with established Agency procedure.
- Continued regulation of combined sewer overflows is a beneficial and essential element of an effective statewide WQM plan. Local treatment authority plans for controlling combined sewer overflows must comply with applicable Pollution Control Board rules.

Chapter Three -- Agriculture: The control of water quality impacts from agricultural activities is the foundation of a comprehensive strategy for the abatement of nonpoint source pollution. The responsibility for control of agricultural nonpoint source pollution is shared among federal, state and local agencies and the individual farm operator and is based primarily on a program of voluntary compliance. The policies and recommendations contained in the plan reflect the institutional and program changes which were first suggested in the initial plan in 1979.

- * The WQM Plan recommends expanded development of a program of education and research efforts directed towards agricutural nonpoint source pollution in five primary areas of concentration: erosion and sedimentation, livestock waste management, silviculture, pesticide use and fertilizer application.

- * The Illinois Department of Agriculture and the 98 soil and water conservation districts have continued responsiblity for technical services, cost-sharing and direction of the soil erosion control program.

- * The Illinois Environmental Protection Agency (IEPA) and the Illinois Pollution Control Board (IPCB) have continued responsibility for water quality monitoring, progress accountability and enforcement of the provisions of the water quality related elements of the agricultural nonpoint source control program.

- * The State has the primary responsibility for assuring the efficient and effective use of fiscal, technical and personnel resources related to soil erosion and water quality nonpoint management objectives. Local, state and federal agencies should cooperate to assure adequate compliance monitoring and assessments are made. Local voluntary support is encouraged.

- * The State, through the Department of Agricultre, should continue to provide funding to accelerate the rate of soil survey completion in order to provide full coverage of the State with modern surveys.

- * The Illinois EPA should continue to upgrade and refine its program for administering the Illinois Pollution Control Board's Livestock Waste Regulations (Agriculture Related Pollution, Ill. Adm. Code, Title 35, Subtitle E, Chapter I, Part 501). Problem feedlots will continue to be prioritized on a "worst case first" basis for follow-up action. Compliance with existing regulations should be pursued on a voluntary basis whenever possible. To defray compliance costs, livestock operators should be informed of sources of financial relief and lower cost alternatives for waste management.

- * The Illinois Department of Conservation, Division of Forest Resources and Natural Heritage (IDOC-FRNH) is the primary agency responsible for directing technical assistance and educational programs for forestry operations. The recommendations contained in the State Forest and Related Resources Plan, developed by IDOC-FRNH, should be implemented.

- * Reduction in fertilizer contributions to high nitrate concentrations and elevated nutrient levels should be controlled through sound fertilizer management practices.

- Continued emphasis should be placed on the development and implementation of an effective program of pesticide waste management.

- Cooperative agreements should be undertaken by the Agency with other State and Federal agencies to evaluate pesticide problems resulting from their use in agricultural production. Pesticide use surveys and water quality monitoring programs should be coordinated and effectively employed in the evaluation process.

- Integrated pest management programs are encouraged.

Chapter Four -- Construction: The emphasis of the WQM Plan, with regard to construction nonpoint source control, is preventative in nature. Construction nonpoint source pollution is not as widespread as other types of nonpoint source pollution in the State, but when it occurs it is usually significant. Effective programs for mitigating the impacts of construction nonpoint source control can be established using existing techniques and authorities. This is especially true at the local level. Additional coverage of this problem can be through improvement in administrative procedures and site practices by the developer of a site, whether they be either a private or public entity. From a statewide perspective, the control of construction non-point source pollution is a necessary support to the agricultural erosion and sedimentation control program.

- The WQM Plan emphasizes the development of technical and administrative guidance tools to assist responsible units of government and agencies in the selection of best management practices (BMPs) and administrative mechanisms for the needed nonpoint source control.

- Designated Management Agencies (DMAs) responsible for the control of construction nonpoint sources include municipal and county governments, soil and water conservation districts throughout the state as well as various state agencies (IEPA, IDOT, IDOC, and the ICDB).

- It is the primary responsibility of the state to control construction nonpoint source pollution arising from state sponsored or directed activities. State Agencies responsible for regulating and reviewing construction related activities, such as IEPA, IDOT, DWR and IDOC, should consider necessary conditions in permits for water resource related projects to prevent pollution from these activities.

- All counties and municipalities should carry out some or all of the following preferred control practices for local nonpoint source pollution: Adopt and enforce standards and specifications for erosion and sedimentation control in developing areas; Adopt and enforce model ordinances which contain minimum standards for control in those areas currently under development; and where possible, better use of both local and state personnel, through training and education programs.

Chapter Five -- Urban Runoff: From a statewide perspective, the control of urban runoff is a necessary component to prevent impairment of water uses in an urban setting. Local units of government have primary responsibility for the control of urban runoff. Urban runoff studies in eight standard metropolitan statistical areas across Illinois indicated that lead, copper and iron exceed the existing general use water quality standards 25 to 30 times per year as a result of urban runoff at various points within each study area, and that the once a year maximum may be 15 to 20 times the standard. The Plan stresses three ways to reduce urban runoff pollution: 1) by controlling the design, construction, and maintenance of the drainage network; 2) by preventing polutants from entering the drainage network; and 3) by treating stormwater to remove pollutants before polluted runoff reaches a waterway.

- Research which will give technical and administrative guidance to the responsible units of government should continue. This includes continued analysis of National Urban Runoff Program (NURP) results to maximize its transferability throughout the State, analysis of the impact of urban stormwater on beneficial water uses, the relationship between air and water quality, and the standardization of technical and administrative urban stormwater runoff control practices.

- * In northeastern Illinois, all appropriate municipal and county governments should implement measures to work toward a reduction in BOD in urban stormwater runoff from separately sewered areas.

- * Municipalities and counties should adopt and enforce appropriate and adequate stormwater detention ordinances. Such ordinances should be consistent with the minimal standards set forth in the model ordinances developed by either the Northeastern Illinois Planning Commission (Suggested On-Site Stormwater Detention Basin Ordinance, January 1980) or Southwestern Illinois Metropolitan Planning Commission (Model Stormwater Detention Ordinance for Developing Areas, January 1982).

- * It is the primary responsibility of the local, state or federal agency to control urban runoff contributions arising from their individually directed activities and facilities. Preferred control practices are administrative procedures for personnel training, improved equipment utilization and scheduling as well as controlled application programs for de-icing or other related right-of-way clearance programs.

- * An program of education/information transfer should be initiated. The program would: 1) acquaint developers and local officials with the need for use of proper stormwater management techniques, 2) establish and promote anti-litter activities, and 3) inform homeowners of the proper use and application of fertilizers and pesticides.

Chapter Six -- Mineral Extraction Oil Brine Disposal: The Illinois Water Quality Management Plan identified seepage from brine holding pits, injection operations and abandoned wells as the major sources of brine pollution in Illinois. Oil brine pollution is particularly significant in Central and Southern Illinois. The major impact of brine damage in this area is the contamination and resultant decrease in productivity of the soil. The WQM Plan stresses that strict enforcement of existing regulatory guidelines for the disposal of oil field brines is essential for the protection of currently utilized and potential groundwater sources as well as surface water quality. From a statewide perspective, the control of oil field brine is a necessary component for the compliance management of groundwater and surface water quality as well as the soil erosion control program.

- * The State has primary responsibility through the Gas and Oil Division of the Department of Mines and Minerals (DMMR) for the control of water quality impacts from oil field brine. The control of erosion and reclamation of soil and water resources is a local responsibility.
- * Technical guidance is necessary to aid in the selection of Best Management Practices to prevent water quality degradation and restore degrade soil and water resources.
- * Local designated management agencies, should continue to inventory and categorize areas of oil field brine damage and should work for brine damage reclamation.

Chapter Seven -- Mineral Extraction/Mining: The Plan summarizes work various agencies on methodologies to assess water quality problems and on assessment of mine reclamation techniques. Studies of GERFDC, SIMAPC and other agencies showed that abandoned coal mining operations, closed before recent reclamation laws, constitute a majority of potentially polluting mine sites.

- * Control of pollution from mining activities is necessary to protect waters of the State. Reclamation of abandoned mines and mine waste sites can improve water quality for legitimate uses. Water quality priorities for reclamation should be as follows: (1) public water supply watershed and (2) general use water.
- * The maintenance of water quality affected by mining and quarry operations should be assured through interagency cooperation during permit review and the hearing process.

Chapter Eight -- Hydrographic Modification: The Plan defines hydrographic modifications as activities which alter stream channels in such a way that flow patterns are changed. Estimates indicate that one-third or 12,000 miles of the total streams mileage in Illinois has been altered. In Illinois, primary decision-making on hydrographic modification projects rests with the U.S. Army Corps of Engineers and the

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Illinois Department of Transportation, Division of Water Resources. From a statewide perspective, the control of pollution resulting from hydrographic modification procedures is a necessary component for the maintenance of legitimate water uses in both urban and rural settings. The primary responsibility for the control of hydrographic modification impacts on water quality rests with the State.

- Illinois EPA, under Section 401 of the Clean Water Act of 1977, will review all applications for hydrographic modifications associated with dredging under Section 404 of the Act. In addition, IDOT, Division of Water Resources and Illinois EPA will jointly review all applications for permits for hydrograhic modification under Section 10 of the federal "Rivers and Harbors Act of 1899" and Sections 65 and 70 of "An Act in Relation to the Regulation of the Rivers, Lakes and Streams of the State of Illinois".
- Districts organized under the Illinois Drainage Code are considered designated management agencies for the control of hydrographic modification impacts. Local public and private interests, including drainage districts, should consider hydrographic modification alternatives that are less likely to cause water quality degradation in lieu of channel deepening and widening projects.
- The modification of permits and operation plans for existing impoundments for the improvement of water quality should be encouraged. Procedures for assuring adequate consideration of water quality impacts for proposed impoundments should be guaranteed.
- The Army Corps of Engineers should cooperate with the State and local jurisdictions in the siting of suitable dredge disposal areas, consistent with the provisions of Section 404(t) of the Clean Water Act of 1977 to maintain federal interest in navigation.

Chapter Nine -- Groundwater: The Illinois WQM Plan summarizes the nature of groundwater problems in Illinois. A large number of Illinois communities depend on groundwater as a water supply. However, numerous sources of contamination threaten this inadequately protected resource. Groundwater protection in Illinois is accomplished predominantly through remedial action. Although this approach provides a reasonable degree of protection, better management of groundwater is needed. Protection of groundwater quality is a necessary component of an overall water quality management strategy and implementation responsibility is shared between state and local governments.

- * The emphasis of the WQM Plan is to ensure the conjunctive management of ground and surface water.
- * Areas which have a high potential for groundwater contamination should be identified and protected from pollution. The Illinois State Water Survey, Illinois Geological Survey, Illinois EPA and the U. S. Geological Survey should monitor groundwater in areas of high usage.
- * Additional state and/or local control of contamination sources, based on existing authorities, should be actively pursued.
- * A groundwater education program needs to be undertaken in order to underscore the importance of protecting underground water resources.

Chapter Ten -- Groundwater/Residual Waste: Residual waste is material (sludge) which is separated from point discharges of industrial, municipal or private waste treatment plants. This waste may contain pathogens, heavy metals, toxic or hazardous material which can cause water pollution. The WQM Plan emphasizes the need for the conservation and reuse of wastes. Needs include the better use of existing sludge management systems and education programs.

- * The State, through Illinois Pollution Control Board Rules contained in Chapter 7 (Solid Waste) and Chapter 9 (Special Waste Hauling Regulations) is responsible for the regulations of solid waste disposal practices. In addition, the State is responsible for sludge disposal resulting from the operation of publicly owned treatment works through IPCB rules in Title 35, Subtitle C, Chapter I, Water Pollution.
- * The Plan recommends consideration of disposal alternatives through Section 201, landfill compliance with IPCB regulations, proper practices in soil application, continued enforcement of hazardous or toxic standards and permits and education for those who work with sludge.

- The preferred method for disposal of domestic septage, land application, should be encouraged. Specific wastewater treatment plants should be permitted by the IEPA to receive domestic septage. Special consideration is given to conditions during winter when land application is not possible and septage that contains hazardous or toxic wastes.
- The disposal of water treatment plant residues or sludges should be evaluated on a case-by-case basis.
- Responsible local agencies should implement the most cost-effective sludge disposal/utilization schemes consistent with applicable regional and subregional residuals disposal plans.
- The Septage Disposal Plan adopted by NIPC for the six county Chicago metropolitan area is made a part of the Illinois WQM plan for application in its area. Specific recommendations are developed for sludge management in NIPC area communities.

Chapter Eleven -- Groundwater/On-Site Disposal: The Illinois Water Quality Management Plan emphasizes that properly installed on-site systems are of sufficient structural and mechanical integrity to be received as reliable wastewater treatment options. A key area for improving performance of on-site systems is in the procedures for improving quality assurance in terms of design, installation and management of systems. From a statewide perspective, the control of adverse water quality impacts from on-site disposal systems is a necessary component in the conjunctive management of ground and surface water. The responsibility for the proper use and placement of on-site systems is shared between the State and local units of government.

- The State has primary responsibility, through the Illinois Department of Public Health (IDPH) and those counties acting as designated agents of the State, to ensure the effective enforcement of the Private Sewage Disposal Code. In those instances where urban or county health departments act as a local independent authority, they are primarily responsible for enforcement of the appropriate private sewage disposal ordinances or codes.

- * It is the primary responsibility of the State to ensure that the administration and application of the IDPH Private Sewage Disposal Code and the IEPA Construction Grant Program be closely coordinated.

- * The education/information function should be stressed. This includes both the public and private sectors. All state and local agencies involved with on-site disposal should be kept informed of current developments in on-site disposal technology, and should provide on-going training for their staff. The development of a regular schedule and program of training seminars on septic tank installation and maintenance for licensed contractors and new applicants is encouraged.

Chapter Twelve -- Stream Use/Water Quality Standards: The present Illinois Water Quality Standards have been in effect since 1972. The uses that a given water will support should be directly reflected by the water quality standards assigned to it. The identification of attainable stream uses and supporting water quality criteria are the cornerstornes of the water quality management planning proces. The primary responsibility for the establishment of water quality standards and their revision rests with the Illinois Pollution Control Board.

- * The emphasis of the Illinois WQM Plan is to ensure that water quality standards are established and maintained in a manner consistent with the 1970 Environmental Protection Act. This includes the review of existing water quality standard, establishing a process to tailor water quality standards to existing and potential uses of a stream segment and ensuring that public water supplies are protected from degradation.

- * The Illinois EPA will work with adjoining states to assure that waters flowing into Illinois meet applicable Illinois water quality standards at those points of entry.

- * The designated areawide WQM agencies will assist the Illinois EPA in the process of developing attainable water quality standards for water bodies in those areas.

Chapter Thirteen -- Management: Effective treatment and control of existing sources of pollution and the prevention of future water quality problems are dependent on an effective management system being established to implement the WQM plan. From a statewide perspective, an effective management system is the key factor in maintaining and implementing the WQM Program.

- The Water Quality Management Plan emphasizes the development of an acceptable and workable Statewide WQM management structure based on the existing state and areawide management systems established in the four Illinois certified and approved WQM Plans.
- This WQM Plan identifies and designates as WQM agencies all entities necessary for the implementation of an effective Statewide WQM program.

Future Implementation Needs

Nonpoint sources contribute significant pollutant loadings to the surface waters of Illinois. Agriculture, particularly row crop agricultural practices, is the single most significant activity to degrade the water resource base of Illinois. Certain other nonpoint sources contribute large quantities of pollutants to the water resource base. In Illinois hydrographic modification, construction erosion, coal mining, and salt water intrusion due to secondary recovery production techniques for petroleum are other significant nonpoint sources. The distribution of problem occurrence also contributes to the complexity of implementing statewide abatement strategies. For example, coal mining activities and petroleum extraction are generally restricted to the southern one-third of the State. On the other had, construction related nonpoint sources are geographically dispersed throughout the State.

Nonpoint source abatement strategies not only face the complexities of geographic problem dispersion, they also must account for site-specific nature of nonpoint source control techniques. This situation is the direct opposite of the point source control programs which have evolved in the State. These programs rely on a system of process controls, wasteload allocations, permit conditions and a heavy public sector subsidy through the construction grants program. As a result, the management system for point source control can be centralized without a loss of program effectiveness and abatement efficiency. Nonpoint source controls, from a management and implementation standpoint, are currently decentralized. Not only are these control programs decentralized, their primary focus is not necessarily water quality oriented. An example of this management orientation are the cost-sharing programs available to the agricultural community. While much work has been done in Illinois to improve the targeting of cost-sharing resources, these programs still inherently are designed for soil conservation rather than water quality.

In addition, point sources are of primary concern during low flow conditions of surface water systems while nonpoint sources (except for acid drainage from inactive deep mines and baseflow contributions from groundwater sources) are of minimal impact under these conditions. However, nonpoint sources of pollution are most critical in terms of negative impact on water resources during high flow conditions when point sources have little to no impact on water quality. Consequently, these technical and management differences in point and nonpoint source controls are significant and must be accommodated in order for the State to fulfill the mandates of the Clean Water Act. If they cannot be effectively integrated and resolved, nonpoint sources may negate many of the water quality gains achieved by the costly (in terms of capital investment) reductions achieved through point source effluent limitations.

In summary fashion, the following items highlight the implementation needs for nonpoint source control in Illinois:

1. Construction site runoff affects urban areas similar to agricultural erosion. Programs are directed at major growth areas since the control BMPs are preventative. The focus of the program is to assure local authorities deal with the problem. In many cases the local soil and water conservation district has authority and works conjunctively with municipal government. The following activity areas require implementation assistance:

   a) Technical/legal support to adopt and enforce appropriate ordinances
   b) Distribution of standards and specifications procedure to guide local activities in a consistant manner

2. Urban runoff is a problem in major urban areas of Illinois. The control strategy generally encompasses stormwater detention basins or combined sewer overflow treatment. Control options are generally corrective and not preventive. Although erosion may be found in urban areas, control generally is geared toward constituents from urbanization and also respond to spills of chemicals or other material within the urban area. The following activities required initiatives to assure implementation:

   a) Design and construct urban flood retention basins sufficiently sized to also achieve water quality benefits. The incremental increase in design size for water quality is proportionally small.
   b) Work with high priority communities which elected to study alternative controls for combined sewer overflow problems to assure central strategies provide water benefits.
   c) Support effective local storm ordinances development and effective enforcement practices and procedures.
   d) Develop an educational program to inform homeowners of the proper use of fertilizers, pesticides and chemicals as well as proper disposal of containers.

3. Oil field brine has been a problem in many southern counties. The old brine pits require reclamation in addition to brine escape to surface and groundwater, the area is highly vulnerable to erosion. Incentives are necessary to mitigate damages to water supplies and waterways. In extreme cases, deep soil ripping and/or detention structures may be necessary. Since brine storage in pits is no longer permissable, the control is strictly corrective for critical sites.

4. Hydrographic modification is a significant problem affecting over one third of our waters. Channelization, deepening, relocation and changes to waterways not only causes water quality changes but also impairs aquatic habitat and water uses directly.

   Control strategies for both urban and rural streams and lakes can be preventative or corrective. The following BMPs require incentives to implement:

   a. In stream practices to enhance biological use including drop structures, jetty construction, and bed material placement.
   b. Shoreline/riparian corridor practices including tree/grass planting, bank stabilization, and livestock fencing.

5. Agriculturally related soil erosion control has been identified as the highest priority non-point water quality problem in Illinois. As has been alluded to in previous sections of this discussion, the Illinois EPA has been successful to a degree in working with agriculture organizations in abating soil erosion. However, without further incentives and program flexibility these programs will have reached the limit of their usefulness in combating this problem. Although traditional agricultural programs such as those sponsored by the Soil Conservation Service (SCS) and the Agricultural Stabilization and Conservation Service (ASCS) have been modified to a degree in order to accomodate water quality concerns, they are still inherently directed toward the issues of soil productivity and soil stewardship. In order to develop an agricultural nonpoint source control program which addresses the problem of soil erosion and sedimentation as a water quality issue, new initiatives could be effectively utilized:

   1. Provisions for funding BMP's in areas exclusively for the purposes of water quality enhancement and restoration;

   2. Targeting additional funding for the application of BMP's in lake watersheds.

   3. Funding of point and non-point source controls in watersheds conjunctively to maximize water quality benefits for the least amount of capital expenditures.

AGRICULTURE NONPOINT SOURCE CONTROL PROGRAM IN ILLINOIS

Statewide water quality planning under Section 208 of the Clean Water Act in Illinois was initiated early in 1976. In July of that year, a Task Force on Agriculture Nonpoint Sources of Pollution was convened to advise Illinois EPA in producing a comprehensive water pollution control plan. Its membership included 76 representatives from agriculture, state and federal agencies, universities, and environmental groups. The Task Force was divided into subcommittees to deal with specific areas of soil erosion, livestock waste management, and agrichemical use.

In monthly meetings held through April, 1978, the Task Force developed a set of recommendations which evolved as the agriculture component of the Illinois Water Quality Management Plan. This portion of the Plan was conditionally approved by USEPA on September 28, 1979.

Soil Erosion Program

Assessed as the most severe agricultural related problem is soil erosion resulting in lake sedimentation. Gross erosion exceeds 180 million tons annually in Illinois, 158 million tons of which emanates as sheet and rill erosion from cropland. Estimates indicate over 8,000 acre-feet of storage capacity are lost each year in the State's impoundments.

The ultimate goal set forth in the Plan is to reduce these soil erosion losses until there are no lands in the state with long-term average annual soil erosion losses exceeding the soil loss tolerance "T" established for maintaining soil productivity. This goal is to be attained by the year 2000. Interim goals for 1983, 1988, and 1994 are 4 "T" (~ 20 tons/acre/year), 2 "T" (~ 10 tons/acre/year), and 1 1/2 "T" (~ 7 1/2 tons/acre/year), respectively. Additionally, the 1988 goal is to reduce soil losses until there are no gently sloping lands in the state with long-term average annual soil erosion losses exceeding the "T" values of two to five tons per acre per year. Gently sloping land is considered to be less than 5% slope where control can be achieved with conservation practices such as, but not limited to, conservation tillage and contour farming. Gently sloping land which cannot meet the "T" value without structural practices would fall under the 2000 goal (Appendix I).

The Plan indicates 9.6 million acres of cropland are in need of treatment. Two conservation programs are considered; one emphasizing terracing and one emphasizing contouring and conservation tillage. An additional 900,000 acres of cropland will have to be converted to permanent pasture or woodland in order to meet the established "T" value goals. Based on 1978 dollar figures, estimated cost for implementing the high-terracing option is $1.6 billion and the low-terracing option $748 million. The difference is reflected in construction, and design and layout costs for terraces. Promotion of contouring and conservation tillage practices is encouraged to keep implementation costs at a minimum.

The Illinois Department of Agriculture and the Soil and Water Conservation Districts are designated as management agencies for technical services and cost sharing and to direct the soil erosion control program aimed at achieving goals outlined in the soil erosion section of the plan. Responsibilities will be administered under existing authority defined in the Soil and Water Conservation Districts Act.

The Plan proposes that the state appropriate funds annually, contingent upon fiscal constraints and competing budget demands to provide cost sharing monies and additional technical assistance for implementing land treatment techniques to control soil erosion and runoff. The funds are to be administered by the Department of Agriculture and Soil and Water Conservation Districts and allocated according to the following schedule:

Fiscal Year	Technical Assistance ($ in millions)	Cost-Sharing
1981	1.0	3.0
1982	1.5	4.0
1983	2.0	5.0
1984	2.5	6.0

Even with severe budgetary constraints in Illinois $500,000 for cost-sharing has been appropriated which was used during the 1981 growing season to cost-share conservation tillage practices.

Funding has also been provided to support the hiring of 40 Administrative Aides. The Aides work under the supervision of two and in some cases three Soil and Water Conservation District Boards. They provide technical assistance to landowners in implementing conservation practices. A special appropriation of $250,000 was granted for fiscal 1984 to increase the number of Administrative Aides. Intentions are to ultimately assign one Aide to each of the 98 Soil and Water Conservation Districts in the State.

Amendments to the Soil and Water Conservation Districts Act in 1979 required the Illinois Department of Agriculture to develop Statewide soil erosion and sediment control guidelines. Subsequently, each District was to adopt standards consistent with the State guidelines. By April 1982, all 98 Districts had approved programs. Sixteen of these contained standards more stringent than required by the State.

The guidelines outline goals for reducing erosion on cropland and define practices used for attaining the goals. They also provide a mechanism for receiving and investigating complaints of alleged violations of District standards (Appendix II).

In the event that an "aggrieved party" files a complaint with the local Soil and Water Conservation District, an investigation would be made by the local District to determine if there is compliance with the District standards. If a person disturbing the land were found to be in violation by the District, financial and technical assistance would be offered to aid in gaining compliance. If technical and financial assistance at the level determined by the district for a specific eligible Best Management Practice (BMP) is not available for cost-sharing, the owner and occupier cannot be required to install those BMP's. A $50,000 State appropriation was passed for fiscal 1984 to cost-share installation of practices required as a result of a complaint investigation.

If after one year a schedule of compliance has not been entered into by the landowner or occupier, the district shall hold a hearing to determine reasons for non-compliance. The Department of Agriculture shall review the findings on the District hearing and may, if a violation exists, hold a formal hearing to determine why the standards are not being observed. The Department would issue a finding. If the finding indicates sediments are being delivered to waters, the Department shall, within 30 days, send a copy of its findings to the Illinois EPA for appropriate action. Appendix III illustrates the complaint process. Appendix IV lists and describes the status of the 32 complaints that have been filed since the complaint process became effective January 1, 1983.

The Illinois EPA and the Illinois PCB are management agencies responsible for water quality monitoring and enforcement of provisions of the water quality related elements of the soil erosion program. This portion of the program is administered under existing authorities under the Illinois Environmental Protection Act and the Illinois Pollution Control Board Rules and Regulations.

Intensive water quality monitoring has been conducted by Illinois EPA in conjunction with the Highland Silver Rural Clean Water Project and the Blue Creek ACP Special Project. A stream sediment study has also been carried out in cooperation with the Illinois State Water Survey. Data from these projects are being used to evaluate effectiveness of installing conservation practices and to help develop more specific water quality standards for sediment pollution control.

The State has recognized the importance of soil surveys in providing information for developing conservation plans and designing functional structural practices. In fiscal year 1981, the Illinois Department of Agriculture, Division of Natural Resources, began assisting in the funding of soil surveys, so as to accelerate the completion of those surveys in 1991. The Illinois Department of Agriculture, Division of Natural Resources, the county, and the Soil Conservation Service, paid 25%, 25% and 50% respectively. The following chart is the rate of progress required and actually started to complete soil surveys in Illinois by 1991.

Rate of Progress Required to Complete Soil Surveys in Illinois by 1991

Fiscal Year	Projected Start	Actually Started	Progress Complete	Number of Surveys Underway	Mapping Goal Acres
1981	11	11	4	20	1,500,000
1982	3	3	2	21	1,700,000
1983	2	0	2	21	1,800,000
1984	4	0	4	21	1,800,000
1985	6		6	21	1,800,000
1986	5		6	20	1,800,000
1987	5		5	20	1,700,000
1988	5		5	20	1,600,000
1989	0		6	14	1,500,000
1990	0		7	7	900,000
1991	0		7	7	700,000
Total	41	14	54		16,800,000

To further support the conservation effort Governor James Thompson has directed a five-point plan for controlling soil erosion . Under the new plan:

- State agencies will work with the Agriculture Department to prepare conservation plans for state-owned farmland.
- The Association of Soil and Water Conservation Districts will be provided a grant from the Environmental Protection Agency for water quality work.
- Priority will be given to soil conservation in the Department of Agriculture's budget.
- The Illinois Farm Development Authority will be directed to help farmers finance soil conservation through loans for installing conservation practices and purchasing appropriate tillage equipment.
- An annual award recognizing the farm family that has done most for soil conservation will be established.

To facilitate coordination of an ongoing soil erosion program a State Soil Erosion and Water Quality Advisory Committee (SEWQAC) has been appointed. The objective of the committee is to advise and assist local, state, and federal agencies in the following areas:

- Coordination of soil erosion and water quality programs
- Long-range planning programs and projects
- Providing advice to implementation agencies
- Recommendations for legislative action
- Resolving mutual problems
- Developing annual progress reports on compliance with the Illinois Water Quality Management Plan and State Soil Erosion and Sediment Control Guidelines

The Director of the Illinois Department of Agriculture and the Superintendent of the Department's Division of Natural Resources co-chair the committee. Committee members include representatives from the following:

Senator Jerome Joyce
Senator John Maitland
One Member Appointed Farmer-At-Large
Agricultural Division of the Illinois Bankers Association
American Agriculture of Illinois
Association of Illinois Soil and Water Conservation Districts
Farmers Home Administration
Illinois Agricultural Association
Illinois Chapter of the National Farmers Organization
Illinois Department of Agriculture
Illinois Department of Conservation, Forest Resources and Natural Heritage
Illinois Department of Energy and Natural Resources, Natural History Survey
Illinois Environmental Council
Illinois Environmental Protection Agency

Illinois Farmers Union
Illinois Society of Professional Farm Managers and Rural Appraisers, Inc.
Illinois State Grange
Illinois Water Resources Commission
Illinois Women for Agriculture
State Soil and Water Conservation Districts Advisory Board
University of Illinois, Cooperative Extension Service
USDA, Agricultural Stabilization and Conservation Service
USDA, Soil Conservation Service
United States Environmental Protection Agency

One of the main accomplishments of the SEWQAC has been to improve the coordination and implementation of rural watershed protection programs. Projects which reduce the delivery of nonpoint pollutants and sediments to multipurpose reservoirs and lakes used as public water supplies are given the highest consideration in the committee's priority setting procedure.

Livestock Waste Management

Principal concerns in livestock production are with small open feedlots scattered throughout the State. Of 58,000 feedlots in Illinois an estimated 4,600 beef, 1,300 dairy, and 10,200 swine feedlots need runoff controls.

During the development of Illinois' Water Quality Management Plan, the Illinois Pollution Control Board was in the process of adopting Chapter 5: Livestock Waste Regulations (Appendix V). The Plan ultimately called for compliance with the regulations through a program of random investigation. Illinois EPA was designated the lead agency to administer the program.

The regulations required all livestock operations to be in compliance by June 30, 1979. Since that time Illinois EPA has maintained a staff of up to five Agricultural Specialists to survey livestock facilities and assist in solving problems related to livestock waste management.

Currently four Agricultural Specialists are working on the program statewide. Additional support is provided by the Division of Water Pollution Control Permit Section and the Agency's agriculture advisor.

In the 3 1/2 year period through December 1982, nearly one thousand facilities have been surveyed. Sixty-two percent of these surveys were made in response to citizens' complaints and the remainder were conducted through Agency reconnaisance in concentrated animal producing areas.

Eighty-five percent of the facilities have had identifiable pollution problems or regulatory violations. The major problem has been open-feedlot runoff. The second most frequently noted problem was pit and lagoon overflows.

It is EPA's philosophy to work on a "worst case first" basis. The primary concern is with situations involving water pollution. Follow-up on odor nuisances depends upon the problem's severity and available staff time and resources. Compliance is pursued through voluntary actions of the livestock operator whenever possible. Litigation is used only as a last resort.

Experience over the last 3 1/2 years has shown a willingness of livestock operators to cooperate when a problem is identified. Compared to clean-up of municipal and industrial water pollution problems, the success in dealing with livestock waste pollution has been much more favorable percentage-wise and in time required for problem resolution.

Alternatives to voluntary compliance include requiring an operation to obtain an NPDES permit and litigation. Since July 1979, ten NPDES permits have been required and fifteen cases have been referred to enforcement out of the 1000 facilities surveyed.

The main impediment in gaining regulatory compliance has been financial constraint caused by the existing unfavorable economic conditions. Financial assistance for constructing livestock waste handling systems is provided on a very limited basis by the Agricultural Stabilization and Conservation Service. A state supported cost-share program has not been developed and is not likely due to budgetary constraints.

One potential source of financial relief is offered in the form of a reduction in real property tax evaluations. The Permit Section in the Illinois EPA Division of Water Pollution Control certifies that various components of a waste handling system are functioning as pollution control devices. This may include holding ponds, settling basins, clean water diversions, etc. With concurrence from the Illinois Department of Revenue, assessed values for qualifying components are deferred from the operator's total property tax assessment.

In August, 1982, the Agency adopted design criteria for vegetative filter systems used to control feedlot runoff. These systems may be more practical and affordable for smaller feedlot operations as compared to conventional lagoon systems. Savings on costs of installation of up to 50% may be realized in some cases. The Agency has encouraged the use of vegetative filters and feels their acceptance and use by livestock operators will significantly reduce pollutional effects of a large percentage of the feedlots in Illinois.

Agrichemical Use

Three areas of concern regarding pesticide use were identified in the Water Quality Management Plan. These were pesticide container disposal, management of waste pesticide rinsates, and nonpoint runoff of applied chemicals.

The container disposal quandary has been addressed from several perspectives. Many chemicals are now being packaged in burnable plastic and paper containers in place of the conventional five-gallon cans. Bulk handling systems are becoming more prominent on large farms and custom facilities. These systems utilize larger containers, 55 gallons up to several thousand gallons, for storage and transport. As a result, estimates indicate a 50% reduction in the number of 5-gallon cans used. Approximately 750,000 "empties" are now being generated each year in Illinois.

Ongoing container recycling projects and educational programs help to minimize container related water quality problems. Safe disposal is stressed in Extension meetings and publications. The Illinois Farm Bureau has successfully conducted can recycling projects the past four years in over 25 counties. These projects, partially supported by the Illinois Department of Energy and Natural Resources, account for 1/6 of the "empties" generated.

Pesticide rinsates have perpetually caused problems for custom applicators. An acute awareness of the situation is now instilled among the pesticide operator's prompting actions to develop innovative waste management techniques.

A manual entitled, "A Guide to Minimizing Problems of Pesticide Waste Management," written by an IEPA, Illinois Department of Agriculture, and industry task force was published in July, 1982, to help custom applicators prevent waste handling problems (Appendix VI). IEPA has printed 500 copies for use in its field operations, and the Illinois Fertilizer and Chemical Association has printed 2,500 copies for distribution to its membership.

Research to develop implementable treatment systems for handling pesticide rinsates is in progress. An experimental evaporation basin in operation at the University of Illinois and a trickling filter system being tested at Southern Illinois University may prove to be options for the more progressive operators.

The control of nonpoint runoff of applied chemicals continues to be a concern. Chlorinated hydrocarbons, despite their suspended use, are still being detected in sediment and fish flesh samples. As predicted the disappearance of these chemicals may not be realized for a number of years.

The newer pesticides being registered by USEPA tend to be less persistent but more toxic resulting in a higher potential for fish kill incidents and destruction of other aquatic life to occur. To minimize effects of the greater short term risk of toxicity, more prudent use of the organophosphate and carbamate compounds is emphasized in applicator training and certification programs.

This pesticide issue is being monitored by the Illinois Department of Agriculture who is responsible for administering the Federal Insecticide, Fungicide, and Rodenticide Act in Illinois via the Illinois Pesticide Act of 1979 (Appendix VII). Other agencies are also involved as members of the Interagency Committee on Pesticides which was established by the State Act. Members of that committee include:

Illinois Department of Agriculture
Illinois Department of Conservation
Illinois Environmental Protection Agency
Illinois Department of Public Health
Illinois Department of Transportation
Illinois Natural History Survey
University of Illinois College of Agriculture

More effective and potential reduction of pesticide use is anticipated through the development of Integrated Pest Management (IPM) programs.

Research continues to provide new knowledge in the development of IPM programs, and Illinois has programs underway in apple, soybeans, horseradish, corn and alfalfa. A significant new approach is the pilot testing of pest event simulators. Pest simulation was used to alert growers about the black cutworm in 1980 and 1981. Much more needs to be done with computers in the seasonal simulation of pest and crop development.

Despite the fact that much more research is needed, significant progress is being made toward IPM goals. The Cooperative Extension Service, College of Agriculture, University of Illinois, has implemented a Crop Production Workshop for the training of pest management consultants and pest scouts. In 1982, there were 29 firms employing 35 professional consultants and approximately 150 seasonal employees. These professionals are serving approximately 1,500 farmer/customers in all counties in Illinois by providing consultation and pest scouting for a fee. This is a significant achievement in that 9 years ago, there were no pest management consultants in Illinois.

Potential problems of excess nutrients and water quality degredation resulting from fertilizer use are addressed through Extension and agrichemical industry educational programs.

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Statement for the Record

on

THE CONTROL OF NONPOINT SOURCES OF POLLUTION

On Behalf of the

American Paper Institute

and the

National Forest Products Association

1619 Massachusetts Avenue, N. W., Washington, D. C.

Before the

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

of the

UNITED STATES SENATE

July 19, 1983

I. Introduction

The following statement for the record on nonpoint source pollution is provided on behalf of the American Paper Institute and the National Forest Products Association (API/NFPA). API/NFPA are national trade associations representing over 2,000 member companies who own and manage forest lands, and manufacture pulp, paper, and solid wood products. API/NFPA members have a direct interest in the effective implementation of nonpoint source control programs.

Our commitment to reasonable nonpoint source control programs has been reflected in our support for the Section 208 planning process under the 1977 Clean Water Act. We are interested in controlling nonpoint source pollution in order to: (1) foster good forest management; and (2) avoid, at our manufacturing facilities, unnecessary treatment -- beyond Best Conventional Technology -- for biochemical oxygen demand and suspended solids on streams where uncontrolled nonpoint sources contribute to these water quality problems.

At the April 7, 1983 Senate Environmental Pollution Subcommittee hearings on nonpoint source pollution, API/NFPA testified reflecting on our industry's involvement with state and federal nonpoint source pollution control programs since 1975. In our testimony, we also outlined several principles which we believe must govern future federal and state nonpoint source control efforts.

Our April 7 testimony provided a status report on the progress being made in dealing with silvicultural nonpoint source pollution by the forty states currently engaged in implementation of Section 208 silviculture nonpoint source control programs. (Ten states did not rank silviculture as a priority plan element.) This survey of current silviculture programs was developed as part of a cooperative research program on forest practices and water quality conducted by API/NFPA with the National Council of the Paper Industry for Air and Stream Improvement (NCASI). A copy of our April 7 testimony is attached to this statement for the record.

During our April 7 testimony, API/NFPA expressed support for what-was-then Section 11(g) of S. 431. This section authorized the development of a study on the effects and methods of controlling nonpoint source pollution, and a report to Congress on the results of the study. We indicated that such a study would be useful to assess: (1) the effectiveness of current Section 208 silviculture nonpoint source control programs; (2) the costs and benefits associated with these programs; and (3) the value of federal funds to assist in further program implementation.

Since the April 7 hearing, a number of more detailed proposals for more comprehensive federal initiatives to deal with nonpoint source pollution have been considered by the Subcommittee on Environmental Pollution, the full Environment and Public Works Committee, and others. On June 16, Senator John Chafee introduced an amended version of S. 431 with a provision for federal financial assistance to states for implementing nonpoint source control programs. We believe that the Chafee proposal merits serious consideration by the Committee. It appears to address many of the major problems in dealing with nonpoint source pollution outlined by witnesses at the April 7 hearing. While we have some reservations with certain elements of the Chafee proposal, API/NFPA support its passage, with modifications.

Later, on June 28, Senator David Durenberger introduced an alternative proposal, building upon the Chafee initiative. However, the Durenberger proposal would have substantially reduced the flexibility available to states in implementing nonpoint source programs, and introduced a sharp element of compulsion to force nonpoint sources to install necessary controls. API/NFPA have serious reservations with a number of aspects of the Durenberger proposal. These are outlined in a July 8, 1983 letter included as Attachment 2 of this statement for the record.

We also understand that other options to address the nonpoint source problem have been informally suggested by interested groups, as well as by EPA. In addition, other legislative proposals are being suggested in the House of Representatives which will shortly hold subcommittee hearings on Clean Water Act issues, including the control of nonpoint source pollution. After reviewing a number of these proposals, we believe that they raise at least nine discreet issues which must be considered in framing new federal initiatives to deal with nonpoint source pollution. In the balance of this statement, we will review each of these issues in an attempt to assist the Committee in drafting a broadly acceptable, and workable, nonpoint source pollution control amendment.

II. Should Additional Federal and State Efforts to Control Nonpoint Source Pollution Build on the Section 208 Planning Process?

It is our position that the completed Section 208 nonpoint source control plans should, to the extent possible, serve as a springboard for developing and implementing nonpoint source management practices. In most cases, state plans developed through the Section 208 process represent the most comprehensive available assessment of: (1) nonpoint source problems in each state;

2) needed controls to deal with these problems; and (3) the most viable institutional arrangements for implementing these controls.

We would be reticent to endorse a new round of planning to guide nonpoint source control implementation activities. Indeed, NCASI's survey of state silvicultural nonpoint source control programs indicates that forty states are already moving forward to implement the programs they developed through the Section 208 process. We understand that similar results in the agriculture area have been obtained through a survey conducted by the National Association of Conservation Districts of state agricultural nonpoint source control programs. We would be reluctant to see this progress interrupted by the interjection of a completely new federal nonpoint source pollution control initiative.

While the Section 208 data base may need to be supplemented in certain areas, it is (as indicated) the best information source available at the present time. It should, thus, serve as the foundation for any efforts initiated by the Committee through new legislation this year. API/NFPA recommend that any legislation reported by the Committee to the full Senate specify that state and federal nonpoint source control efforts should build upon the Section 208 plans developed by the states, and approved by EPA.

III. Should the Federal Government Step-In to Implement Nonpoint Source Controls Where States Do Not Act in a Timely Fashion?

One element common to both the Chafee and Durenberger proposals is the proposition that the federal government would directly implement nonpoint source controls in a state which does not develop an appropriate program under the conditions specified in these legislative options. API/NFPA strenuously object to this sort of federal step-in as a remedy for state inaction.

One important finding of the Section 208 effort is that the nature and variability of nonpoint source problems and needed control measures dictate that control programs must be developed and implemented at the state and local level. In our view, there are very real institutional and resource limitations that would be faced by EPA or any other federal agency attempting to implement, monitor, and enforce nonpoint source controls at the state level. These limitations make direct federal implementation of nonpoint source control programs infeasible, even in cases where states are, for some reason, unwilling or unable to act.

Quite apart from the issue of the federal government's questionable capability to move to implement a program in place of a state, we wonder whether speculation over the possible inaction of a state or states is a real concern. NCASI's survey of state silviculture nonpoint source pollution control programs indicates that forty states are moving forward in the absence of any federal assistance whatsoever. The recent survey conducted by the National Association of Conservation Districts demonstrates a similar degree of state and local commitment in the agricultural area.

The principal impediment to more aggressive efforts to control nonpoint sources over the past three years has not been a lack of state or local interest. Rather, efforts have slowed to some extent because of a perceptible lack of federal support, encouragement, and/or financial assistance to augment state and local efforts.

In this light, we believe it is, at best, premature to threaten heavy-handed federal intervention or sanctions in states which for some reason fail to move forward as fast as many would like. First, the threat of direct federal intervention to implement nonpoint source controls rings hollow in light of the lack of federal capability to perform this function. Second, it is not at all clear that this is the only, or even the best, means of inducing reluctant states -- if there are any -- to move forward in an expeditious fashion.

API/NFPA suggest an alternative role for EPA in this process. We believe that the Administrator should review the status of nonpoint source problems in those states which fail to submit an implementation plan under whatever proposal the Committee finally adopts. The Administrator should report to Congress within eighteen months assessing: (1) the need for additional nonpoint source controls in these states; and (2) appropriate federal sanctions and remedies as a result of the states' failure to act.

IV. Is Federal Financial Support Necessary to Foster the Implementation of Nonpoint Source Controls?

Our industry survey of the current status of state silviculture nonpoint source control programs indicated that a major impediment to more rapid implementation of nonpoint source controls is a lack of available financial and staff resources at the state level. Indeed, ten of the forty states which are actively implementing a silviculture nonpoint source control program responded that lack of federal financial support, as Section 208 grants are phased-out, will slow down their efforts.

Major federal financial assistance to the states for dealing with nonpoint source problems ended in 1980 with the completion of the Section 208 planning process. Since that time, there have been limited federal financial measures provided to the states to help implement specific Section 208 plan elements. In our view, given the current limitations on resources at the state and local level, federal financial assistance will probably be necessary to: (1) help states refine implementation plans, where necessary; (2) implement the education, training, technology-transfer, and other programs designed through the Section 208 planning effort to get best management practices implemented on the ground; and (3) in some limited cases, cost-share the implementation of best management practices.

In the silvicultural area, we believe the principal need for financial assistance is to aid the states in implementing education, training, and technology-transfer programs. We would not anticipate a great deal of cost-sharing for actual implementation of best management practices, since silvicultural best management practices do not generally involve extensive capital costs. However, there will likely be a substantial funding need of this nature in the urban and agricultural areas, where capital expenditures are often involved in nonpoint source control measures.

We appreciate the current lack of hard information concerning the total financial resource commitment necessary to effectively address nonpoint source controls nationwide in order to achieve the goals of the Act. At the same time, we believe that a larger federal commitment, at the present time, would be helpful to begin to move toward this end. However, we would not object to a more limited interim federal involvement (perhaps on a case study basis) designed to generate a more accurate assessment of the total, national nonpoint source control resource needs. Any such interim measure should be fashioned so that: (1) results are obtained on a timely basis; and (2) a comprehensive report to Congress concerning the appropriate Federal role is provided no later than three years from the date of passage of the Clean Water Act amendments currently before the Committee.

V. Beyond Financial Support, What is the Appropriate Federal Role in Addressing Nonpoint Source Pollution?

API/NFPA believe that the implementation of nonpoint source control programs should remain a state and local responsibility. However, there is an appropriate role (in addition to providing financial assistance) for the federal government in this process.

The Environmental Protection Agency should continue to review and approve state nonpoint source control programs in order to: (1) assure reasonable state progress toward meeting water quality goals; (2) guard against unwise expenditure of federal financial resources in supporting state programs that are poorly conceived and/or operated; and (3) resolve any interstate disputes concerning nonpoint source problems. In our view, EPA should also serve as a clearinghouse for the transfer of information on successful implementation programs at the state level. Finally, EPA should assess the progress being made, and keep Congress abreast of needed changes to the federal strategy for dealing with nonpoint sources. This responsibility should include, as suggested above, a requirement for EPA to report to Congress where states do not act to address nonpoint source problems.

In addition to EPA, we believe that the U.S. Department of Agriculture has an important role to play in addressing nonpoint source problems. USDA should provide technical assistance, where appropriate, to assist state implementation of nonpoint source control programs. USDA's expert agencies and delivery systems for dealing with the agricultural community will prove essential in assisting the states to move forward in addressing water quality problems caused by agricultural activities.

Finally, we believe that all federal agencies have a responsibility to work closely with state nonpoint source control implementation agencies to make sure that federal programs are consistent with state efforts in this area. The federal government should not unwittingly cancel out the effects of state nonpoint source control efforts as the result of poorly coordinated federal projects or programs.

VI. Should States Be Bound to a Uniform, Nationwide Date By Which Nonpoint Source Controls Must Be in Place?

Another important finding of the Section 208 planning effort is that the variability of nonpoint source problems from state to state -- and even within states in certain areas -- requires a policy that provides the states with considerable flexibility in controlling nonpoint source pollution. In our view, the most important components of this policy include the flexibility to develop: (1) different types of control programs, both regulatory and non-regulatory; (2) schedules for achieving implementation milestones that reflect the necessary differences in these control programs; and (3) economically and technically feasible best management practices that will be applied in a site-specific fashion.

Reflecting on this important finding, we have considerable difficulty with the requirement embodied in the Durenberger proposal, as well as others, that all states must implement nonpoint source controls within forty-eight months (or some other uniform date). The local variability of nonpoint source problems makes it imperative that states be afforded varying time schedules to implement necessary controls.

We believe that a uniform deadline for compliance could well have a chilling effect on the states' willingness and ability to consider a broad range of alternative implementation programs. Such a deadline runs a very real risk that the states will identify only those problems for which they are certain they can achieve compliance within the forty-eight month deadline.

API/NFPA prefer a less extreme option than attempting to impose nationwide nonpoint source controls within forty-eight months, an approach which appears to us to represent point source type thinking. We suggest that each state program submitted to EPA for approval include a schedule of accomplishments -- agreed upon by both the state and the Administrator -- for the implementation of the nonpoint source controls specified in the state plan. By monitoring the state's progress in achieving these milestones, we believe that EPA will have adequate opportunity to assure the state is moving forward on a timely basis, in a fashion that is reflective of each state's particular nonpoint source problems. This approach will result in a more honest appraisal of the nonpoint source problems in each state, as well as a more sincere effort to deal with these difficulties.

VII. Should the Nation's Nonpoint Source Pollution Control Strategy Continue to be Premised on the Implementation of Best Management Practices?

In November 1975, EPA issued the first in a series of regulations and guidance materials that require the states to utilize the Clean Water Act's Section 208 planning process as a mechanism for addressing nonpoint source pollution control problems through the implementation of best management practices (BMP's) (40 *Fed. Reg.* 55338). EPA's approach to developing best management practices to protect water quality has fostered the concepts that: (1) states, as opposed to federal agencies, will determine whether a practice is indeed a BMP; (2) alternative practices will be examined; and (3) such practices must be technically and economically practicable before they will be adopted.

EPA's approach has also supported the notion that the application of best management practices must be tailored to site-specific conditions. BMP's may, therefore, vary from site to site depending on the nature of particular silvicultural activities and related potential water quality problems. Finally, EPA's approach to BMP development encouraged the utilization of existing forestry expertise in the development of best management practices. This aspect of the BMP development process was essential in securing technically feasible BMP's.

Our experience in working with Section 208 agencies at the state and local level to develop BMP's has been positive. The states that addressed silviculture nonpoint source pollution developed their BMP's in conjunction with the forestry interests in each state. These BMP's meet the regulatory criteria for BMP development set forth by EPA in 1975. It is our understanding that best management practices were developed in a similar fashion in the agricultural area. Because EPA, state, and local Section 208 planning agencies framed BMP's that are both workable, as well as politically acceptable, we are now in a position to move forward to implement needed controls.

In this light, we are most concerned about proposals to replace the best management practice approach with some form of an "average practice" alternative using the standard practice being carried out by the majority of landowners in an area. This option does not appear to emphasize the site-specific nature of nonpoint source controls, or the need for professional judgment in implementing the necessary practices. Moreover, such an alternative approach would lose the political support for implementation of best management practices generated by the Section 208 planning process. API/NFPA thus urge that any new nonpoint source initiatives favorably considered by the Committee retain the concept of best management practices as the appropriate means of dealing with nonpoint source pollution problems.

VIII. Can Financial Sanctions Be Used Effectively to Compel Compliance with Nonpoint Source Pollution Controls?

One suggestion introduced as part of the Durenberger proposal involves cutting off federal financial assistance for any activity not conducted in compliance with required nonpoint source pollution control practices. On the surface, this proposal appears appealing because it does not involve any additional federal financial exposure. Indeed, such an approach could work to reduce the amount of federal financial assistance provided through various federal support programs.

In our view, however, the appeal of such an approach is largely superficial. The element of compulsion injected by such proposals for financial sanctions conflicts with current EPA policy under Section 208 to foster cooperative programs to implement nonpoint source controls. Experience with the Section 208 program suggests that an approach which emphasizes education, training, and, where necessary, incentives, offers the best chance of success, especially in dealing with rural nonpoint source problems. A controversial sanctions program may make states reluctant to honestly identify problems and develop control programs.

In addition, such a proposal -- especially as crafted in the Durenberger amendments -- could have an unanticipated negative effect on water quality. For example, the Durenberger proposal could be read to prohibit federal construction grants for waste treatment facilities to municipalities that do not develop urban runoff control programs. Similarly, many nonpoint source control efforts in the agricultural sector depend on USDA soil conservation and extension assistance as part of the necessary delivery mechanism. However, such federal assistance programs would presumably be denied to farmers that have not promptly implemented agricultural nonpoint source controls.

Moreover, such a proposal would obviously require detailed guidance as to: (1) how such a complicated sanction would be implemented and enforced in a justified fashion by the myriad of federal and state agencies involved; and (2) the specific federal assistance programs affected. We believe that a detailed analysis of current federal assistance programs would be necessary to even begin to consider this type of sanctions approach.

Finally, such an approach assumes that affected federal financial assistance provided through various programs is not directed in a fashion that is designed to achieve other important national purposes. We see no justification for the apparent presumptive desirability of implementing nonpoint source controls, over the other national goals served by affected federal financial assistance programs. The conflicts that would be created with these programs may require broader legislative review than can be provided within the jurisdictional purview of the Committee.

As an alternative to this controversial approach, API/NFPA support, as indicated above, efforts by federal agencies to work with states to assure that the federal programs are consistent with state nonpoint source control efforts. More generally, we believe that positive initiatives rather than financial sanctions against nonpoint sources will have the greatest impact on improving water quality.

IX. Should Nonpoint Source Control Efforts Be Concentrated on Priority Water Bodies?

One issue common to a number of the proposals that have been discussed is whether new nonpoint source control efforts should be concentrated on water bodies where nonpoint source pollution is creating a significant water quality problem. As indicated below, current data are not adequate to directly correlate specific nonpoint sources with water quality standards violations. However, the current state Section 305(b) water quality surveys provide sufficient information to identify those water bodies where nonpoint sources are an important water quality problem.

Consequently, API/NFPA believe that control efforts should not be focused on all water bodies with water quality problems. Rather, new initiatives should concentrate on those water bodies identified through Section 305(b) surveys (or other data sources) on which nonpoint sources are interfering with the achievement of the Act's clean water goals. Both federal financial assistance, as well as any state efforts, should give priority to those water bodies on which nonpoint source controls are most immediately needed.

X. Are Current Data Adequate to Correlate the Implementation of Nonpoint Source Controls with the Attainment of Water Quality Standards, or to Resolve Interstate Nonpoint Source Water Quality Problems?

While existing data are adequate to begin the implementation of nonpoint source controls on priority water bodies, we still have much to learn about the relationship between the implementation of best management practices and improvements in measures of ambient water quality. Clearly, data gaps also exist in determining natural background levels of some nonpoint source pollutants, and in quantifying the impact of long range transport of pollutants as part of the bedload that already exists in most stream systems. Because of these information gaps, we believe that new nonpoint source initiatives should not be confounded by attempting to address issues where insufficient decision-making data exist, such as: (1) nonpoint source compliance with water quality standards; and (2) resolving interstate conflicts over long-range transport of nonpoint source pollutants.

We believe that a program focused on implementation of nonpoint source controls on priority water bodies is an important beginning for the long-range task of improving and protecting the nation's waters impacted by nonpoint source pollution. What such a program cannot do, however, is solve all of our water quality problems in short order.

We thus feel that it is inappropriate to hold states responsible (at least in the near term) for meeting downstream water quality standards. This difficult issue is now being addressed in other portions of the Clean Water Act. To the extent that this continues to be a difficulty in some stream systems, API/NFPA do not believe that this program is the right vehicle to address the problem at the present time.

XI. Conclusion

API/NFPA are encouraged by the prospect of positive Committee action on the next step in controlling nonpoint source pollution, now that Section 208 plans have been completed. We are particularly pleased with the interest that the Senate Environment and Public Works Committee has taken in this matter. We would like to continue to work with the Committee to develop a reasonable proposal for dealing with nonpoint sources.

We believe that the above responses to some of the more fundamental questions that have so far been raised in evaluating different proposals, provide the basis for moving forward to craft an approach that is acceptable to the Congress, EPA, the states, affected nonpoint source interests, and the environmental community. We urge passage of such a proposal during this Congress.

Testimony of

Jefferson D. Hughes

Manager, Environmental Services
Crown Zellerbach Corporation

On Behalf of the

American Paper Institute
and the
National Forest Products Association

Before the

Subcommittee on Environmental Pollution
Committee on Environment and Public Works

of the
United States Senate

April 7, 1983

I. Introduction

Good morning. I would like to thank Chairman Chafee and the members of this Subcommittee for allowing me to testify this morning on behalf of the American Paper Institute and the National Forest Products Association (API/NFPA) with respect to the control of silviculture nonpoint sources of water pollution.

My name is Jeff Hughes. I am the Manager of Environmental Services for the Crown Zellerbach Corporation in Bogalusa, Louisiana. I also serve as Chairman of the API/NFPA Nonpoint Water Quality Committee. API/NFPA are national trade associations representing over 2,000 member companies who own and manage forest lands and manufacture pulp, paper, and solid wood products. API/NFPA members have a direct interest in the effective implementation of nonpoint source pollution control programs.

For the past eight years I have been involved in the development of nonpoint source control programs on a national basis for my company. In addition, I participated in the development of programs in Louisiana and Mississippi to address silviculture nonpoint source pollution under Section 208 of the 1972 Federal Water Pollution Control Act.

Accompanying me today is Dr. George Ice of the National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI). NCASI is the environmental, technical studies arm of the forest products industry. Since 1977, Dr. Ice has conducted industry-sponsored research projects on the water quality impacts of forest management activities, the effectiveness of improved management practices to control silviculture nonpoint source pollution, and the implementation of federal and state silviculture nonpoint source control programs.

II. Impact of Forestry Activities on Water Quality

Much of the interest in the water quality impacts of forestry activities has been focused, in recent years, through the Clean Water Act's Section 208 program. Through Section 208 EPA fostered active programs in a number of states to: (1) assess the impacts of forestry activities on water quality; and (2) devise management practices and control programs, where necessary, to achieve water quality goals.

The results of state Section 208 planning efforts to date have shown considerable variation in programs from state to state. This variability makes it very difficult to draw any generalizations about the 176 areawide and 49 state Section 208 planning programs. However, based upon the data base developed as a result of the Section 208 planning process, we believe that a general perspective on the water quality impacts associated with silviculture activities has been gained by EPA, the states, and the forest industry.

In general, water from forest lands is of high quality and supports the most sensitive water uses. For example, almost all western cities and most eastern cities have municipal water supplies in forested areas. In addition, trout and salmon fisheries depend upon high quality water from forested watersheds.

Based on existing water quality data, which in many cases are admittedly still incomplete, silvicultural activities have not been considered a major, overall, nationwide water quality management issue. However, forest management practices which potentially impact water quality on a localized basis are recognized. These difficulties are usually caused by improper application of forestry practices such as logging road construction, skid trail location, and certain types of site preparation for replanting trees. However, the type and severity of the problems, as well as the nature of the particular silvicultural activity causing the difficulty, vary considerably from state to state due to topography and other local conditions. There is considerable variability even within states in some areas.

In most cases, sediment is considered the primary source of pollution from forestry activities. However, the study report of the Society of American Foresters' Clean Water Act Task Group indicates that sediment from forest lands is estimated to be less than 4% of the total man-caused sediment in the Nation's water. This is particularly significant considering that there are 718 million acres of forested land in the United States which constitute approximately one-third of the total land area.

A reflection of the magnitude of the problem caused by silviculture is the fact that only ten of the 225 Section 208 planning agencies, in their initial problem assessment, identified forestry activities as a priority problem to be addressed by the Section 208 program. In other cases, Section 208 planning agencies have identified either problems which are geographically localized, or problems caused by specific types of activities. While not priority problems, these localized difficulties were addressed during the Section 208 planning process.

III. Forest Industry Involvement in the Development of Nonpoint Source Control Programs Under Section 208 of the Clean Water Act

In November 1975, EPA issued the first in a series of regulations and guidance materials that required the states to utilize the Clean Water Act's Section 208 planning process as the primary mechanism for addressing nonpoint source pollution problems from silviculture, as well as from a number of other sources. Since the development of these EPA policies, the forest industry has assisted in the implementation of the Section 208 process nationally, regionally, and on a state-by-state basis. Nationally, the American Paper Institute and the National Forest Products Association have maintained an active program dealing with Section 208 planning since 1975.

From an industry perspective we feel that our involvement with EPA and other agencies at the national level has been positive in terms of working toward reasonable and effective Section 208 programs. One index of the nature of our involvement at the national level is that, API/NFPA supported reauthorization and continued appropriations for the Section 208 program, through the completion of Section 208 plan development in 1980.

In addition, API/NFPA have developed a cooperative research program on forest practices and water quality with the National Council of the Paper Industry for Air and Stream Improvement. NCASI's January 1983 report, "Summary of Silviculture Nonpoint Source Control Programs - 1982," is attached to our statement. We highlight he conclusions of this report below.

At the regional level, a number of regional forestry associations have organized forestry involvement in the Section 208 process, and provided a forum for the exchange of information on the progress of Section 208 planning in each state. However, due to the nature of the Section 208 program, most of the action has taken place at the state level. In almost every state with a substantial forest land base, the forest industry has contributed to the Section 208 planning process by providing its expertise, cooperating in assessment studies, and even funding studies of management options.

There are almost as many different varieties of Section 208 programs for silviculture nonpoint source control as there are states that worked with the silviculture category. The variation in these programs strongly reflects: (1) the nature, type, and extent of the problem identified in each state; (2) the nature of the ownership of the forest land base; (3) the differences in analyses as to the most effective way to reach those operators or landowners causing the problems; and (4) the nature and effectiveness of existing institutional arrangements for implementation in each state. With at least this many variables to consider, the differences in the types of state programs adopted should come as no surprise.

This variation is healthy. As the NCASI study demonstrates, this variability has provided us with the opportunity to assess the effectiveness of the different types of programs. This will allow us to modify our efforts to achieve effective programs when needed, as we continue to progress through various stages of program implementation at the state level.

Our involvement with the Section 208 program to date has convinced us that at least three basic principles are absolutely essential to the development of any type of program to address water quality problems from forestry activities. These principles include: (1) site-specific application of nonpoint source controls; (2) flexibility in developing control programs; and (3) utilization of existing expertise in nonpoint source control.

A. Site-Specific Application of Nonpoint Source Controls

Because of the variability in the nature and types of nonpoint source pollution problems, we believe that it is imperative that efforts to address nonpoint source pollution continue to be focused at the state level. Control of nonpoint source pollution requires solutions that can be applied in a site-specific fashion. EPA's current regulations and guidance laudably recognize the need for this type of focus in the Section 208 program.

EPA's approach to developing Best Management Practices (BMP's) to protect water quality fosters the concepts that: (1) states, as opposed to federal agencies, will determine whether a practice is indeed a BMP; (2) alternative practices will be examined; and (3) such practices must be technologically and economically practicable before they will be adopted. EPA's approach has also supported the notion that the application of Best Management Practices must be tailored to site-specific conditions. BMP's may, therefore, vary from site to site depending on the nature of particular silvicultural activities and related potential water quality problems.

B. Flexibility in Developing Control Programs

In addition to the need for site-specificity in the development of control practices, we believe that the states must continue to have the option to implement a broad spectrum of control programs. Thus, we strongly support EPA's policy of providing the states with sufficient flexibility to consider a variety of alternative control programs for dealing with silviculture as well as other nonpoint sources of pollution. In the same way that the severity and specifics of silviculture practices (and any related nonpoint source pollution problems) vary from state to state, so do the control programs that the states are implementing.

For example, a number of states have developed programs emphasizing education of, and training programs for, landowners and forestry operators. We believe that this type of program is well adapted to many of the southern states because of the predominance of small, private, nonindustrial landowners in these states. In the South, 70% of the forest land base is held by small landowners. The nonregulatory approach, with the subsequent utilization and improvement of existing extension, education, training, and incentive programs is the most effective way to assure the implementation of Best Management

Practices on the ground. In the South, particularly, this approach has proven successful in encouraging good forest management.

In other states, other types of approaches have been developed. The West Coast states have adopted state forest practice acts which are regulatory programs designed to control various aspects of forest management, including water quality impacts. In some of the northeastern states, licensing programs for forest operators and loggers have been implemented as a result of the Section 208 planning program. States should be allowed to evaluate and utilize a wide variety of possible nonregulatory and regulatory programs for the control of nonpoint source pollution. We urge retention of this approach in dealing with Section 208.

C. Utilization of Existing Expertise in Nonpoint Source Control

A final important element in the administration of nonpoint source control programs is the need for the application of technical and professional expertise in the development of BMP's and program implementation. The variability in silvicultural activities and nonpoint source water quality impacts makes the application of forestry expertise an essential part of the process.

In every state where we have an interest, we have encouraged the state forestry agency -- the agency with silviculture expertise in the state -- to take the lead in developing the silviculture portion of the Section 208 plan. In many cases, state forestry agencies have been chosen as the implementing agencies for the silviculture portions of the Section 208 plans. This is a trend we support. In our view, focusing the nonpoint source aspects of Section 208 planning at the state, rather than the areawide level, is one way of taking advantage of the existing expertise of many state agencies in dealing with some nonpoint source categories.

In order to provide the Subcommittee with a perspective on where state Section 208 efforts have led us, we would like to share the major findings and conclusions of NCASI's most recent survey of state silviculture nonpoint source control programs. As indicated above, the complete report is attached. We will highlight major points below.

IV. Summary of Results From the 1982 NCASI Survey of State Programs

A. Nature of State Programs to Control Nonpoint Source Contributions from Silvicultural Activities

(1) Regulatory Programs

Seven states can now be characterized as having regulatory programs for silvicultural activities. Oregon, Washington, Idaho, and California base much of their nonpoint source control programs on the provisions of forest practice act regulations. The Alaska Forest Resources and Practices Act has only "advisory" Best Management Practices but the prior notification aspects of this Act allow for water quality protection.

Nevada has detailed rules under the Nevada Forest Practice Act which cover erosion control and stream-protection zones. The mandatory use of performance bonds to assure satisfactory compliance with the Nevada rules qualifies this program as regulatory in nature.

In New Hampshire, the "Intent to Cut" form required for harvesting operations allows an operator to sign an agreement to implement BMP's. The "Intent to Cut" form permits monitoring of operations for water quality protection. Failure to sign the agreement to use BMP's, followed by subsequent water quality problems, will result in the operator being required to submit plans for future operations.

(2) Quasi-Regulatory Programs

Four states do not have programs specifically covering silvicultural operations, but have opted instead to emphasize existing regulations designed to control sediment or organic debris in streams. These state programs have been designated as quasi-regulatory because state regulations are not comprehensive for forest activities, or are directed mainly at non-silvicultural activities.

Massachusetts, for example, has legislation requiring prior notification before harvesting and a Slash Law requiring debris be kept out of streams. In Pennsylvania, all activities causing soil disturbance are subject to regulation under a Clean Streams Law. In Maine, road construction BMP's and regulations limiting erosion and sedimentation are enforced, while the silvicultural program involves mainly educational efforts. Hawaii, has strict land-use planning. Under one land-use category, sediment losses are controlled.

(3) Nonregulatory Programs

The majority of states that addressed silviculture (twenty-seven) have adopted nonregulatory control programs. Almost all of these programs involve education efforts to inform operators about BMP's which have been developed for the state. Educational material used includes pamphlets, instruction guides, TV public-service announcements, newsletters, posters, and slide/tape shows. Workshops, tail-gate lectures, and demonstration projects are also being used.

EPA recently sponsored a workshop to assist state forestry, water quality, and extension-service personnel from 6 states (Arkansas, California, Montana, New Hampshire, Oklahoma, and West Virginia) with their Section 208 educational program. Several states will be using EPA's and the U.S. Forest Service's National Training Package (NTP) material which is now becoming available for education purposes.

Another technique used by several states to encourage the use of BMP's is to integrate water quality protection practices into normal forest-extension planning. State studies have shown that professional consulting — provided either by state foresters, industry foresters, or private consultants -- results in a higher rate of BMP use and effective water quality protection.

A third technique used in a few state programs involves incentives to promote the use of BMP's. The best developed cost-sharing program is Minnesota's, where $100,000 was used annually, specifically to encourage the use of silvicultural BMP's. This program, which lasted 3 years, is now being considered for resinstitution. Several other states are attempting to use federal programs like the Forest Incentive Program (FIP) and the Agricultural Conservation Program (ACP) to encourage BMP implementation.

A final technique for voluntary programs might be called a peer-pressure or peer-encouragement approach. For example, in Vermont, when a complaint about a forest operation is received and found to have some basis by a State Water Resources Investigator, a committee from the Vermont Timber Truckers and Producers Association will visit the site and encourage the logger to resolve the problem with appropriate practices.

(4) Other Programs

In many Western states, public lands (primarily U.S. Forest Service and U.S. Bureau of Land Management ownership) constitute a large percentage of the commercial forest land. Both of these agencies have regulations protecting water quality. Therefore, agreements of understanding between the designated Section 208 agencies for the state and the major federal land management agencies to continue to improve water quality protection measures are the primary means of silvicultural nonpoint source control.

B. State Approaches to Addressing Implementation Problems

In 1980, four of the problems most frequently identified by state agencies as impeding progress in their silvicultural nonpoint source control programs were: (1) lack of funds; (2) limitation of agency personnel (both manpower and experience); (3) problems in implementing existing controls or statutes; and (4) the difficulties of contacting and informing small landowners. State agencies continue to show a desire and, in many cases, great ingenuity in addressing these problems.

For many state programs funding will not be available from federal sources to support silvicultural Section 208 programs. However, rather than let these Section 208 programs lapse, some state forestry agencies are absorbing nonpoint source control responsibility into their normal forestry extension work. Industry cooperation in hosting workshops, and in training company personnel has been noted in several states.

The upgrading of agency personnel technical skills to deal with forest nonpoint source questions is probably the difficulty most consistently addressed by state agencies. The reason for this is that training of agency personnel results in multiplying benefits as they interact with forest operators.

Some state agencies found that there were existing state laws and regulations to control nonpoint source pollution. In some cases, delays in notification of silviculture activities limited the effectiveness of these controls. In other cases, the agencies with control responsibilities lacked on-site personnel. The EPA-sponsored agency master planning projects addressed these problems by identifying existing nonpoint source controls and fostering cooperation between the state forestry and water resources agencies.

Finally, contacting and educating numerous small landowners is a management problem which is common to many programs; especially those with a high proportion of non-industrial forest land. Surveys of forestry operations have shown that these non-industrial operations are the most likely to have water quality problems.

C. State Assessments of Section 208 Program Accomplishments

By 1982, several state programs had been operating for a sufficient time so that judgments about program success (and even surveys or enforcement records to document progress) are available. The most important step in implementing a lasting nonpoint source control program would be the integration of water quality concerns into normal forest operations. Comments by state agency personnel indicate that this important step is being accomplished for many programs.

State agency personnel report improvement in both water quality concerns, and cooperation with control programs by forest managers. Several states have conducted field assessments of their programs. Most of these assessments have shown effective water quality protection, and an increased awareness of BMP's associated with forestry activities.

Another measure of program success or failure is the number of enforcement actions and complaints concerning forest operations. In this respect, enforcement records and program assessments have shown that the regulatory programs -- in states which used forest practices acts -- have been effective.

The NCASI survey did discover, however, that some states are finding additional control needs as they proceed to implement their programs. We plan to continue to work closely with these states to assure that these problems are corrected. The attached NCASI report provides considerable detail on the progress being made in each state with a silviculture nonpoint source control program.

D. Prospects for Continued and Effective Section 208 Program Implementation

In 1980, some state administrators predicted that nonpoint source control activities under Section 208 would cease unless federal appropriations were provided to support implementation of state programs. While some monies have been made available to state silvicultural nonpoint source control programs (usually as carry-over Section 208 funds) most federal support has or will shortly be terminated. Therefore, in 1982, NCASI asked state agency personnel to project the future of their programs.

Of the 40 states with a silvicultural nonpoint source control program, 30 projected that their programs would continue as currently operated. States like Oregon and Washington consider their programs to be independent of Section 208 funding for operations because the forest practice acts are financially supported through the states. However, these programs will be cut back in their ability to conduct extensive studies on complex water quality protection questions that might indicate needed forest practice changes. Washington, for example, used $487,000 in Section 208 grants between 1977 and 1981 to conduct studies on forest roads, stream management zones, slope-stability, compliance with the Washington Forest Practice Act and other issues.

Other states provide substantial financial support to their forest nonpoint source pollution protection programs so that continued effective programs can be anticipated. Many states will have to reduce their activity levels. However, since educational materials have been produced and BMP's have been developed and evaluated, the continuation of these programs with reduced funds is possible. Extension foresters will be incorporating BMP considerations into their informational efforts for these states.

In some states, including California and Kentucky, agency personnel are anticipating an adjustment period as programs are finalized and implemented. In other states (Georgia, New Hampshire, New York, North Carolina, and West Virginia) lead agencies will be making decisions about future program direction based on the results of ongoing (or recently completed) assessments.

Some state agency personnel have reported that programs will be downgraded because of lack of funds. In New Jersey, management emphasis is being shifted from private lands to state lands and the activity level for Section 208 is described as "maintenance." In Virginia, agency personnel anticipate a decrease in state activities in silvicultural nonpoint source control, and identify the need for "industry and consultants" to continue the program. In Montana, staff working on an education program have been cut, but most of the educational material for a workshop program is apparently ready. At least part of an educational program will be accomplished.

Summarizing, it appears that the tools (educational material, BMP's) for programs have been developed and most states will be carrying out their nonpoint source control responsibilities using either state funding, low-cost, industry-state cooperative programs, or by incorporating nonpoint source control recommendations into normal forest planning and extension activities.

E. Estimates of Benefits and Costs of Section 208 Silvicultural Nonpoint Source Control Programs

Substantial costs have been incurred and benefits accrued as a result of the nation's silvicultural nonpoint source control programs. A problem in assessing program worth has been the lack of cost and benefit data for state programs. There remains an information gap on the costs and benefits of most nonpoint source programs. For example, in response to the question "are there any estimates of the costs and/or benefits of the silvicultural nonpoint source control programs for your state;" only a few state representatives had cost estimates, and not one was able to provide any benefit estimates.

Costs involve: (1) the Section 208 program development costs of assessing the silvicultural problem and organizing an effective program, (2) implementation and continuing program costs; and (3) add-on costs to operators to comply with guidelines or mandatory Best Management Practices. California, Washington, and Oregon are the most expensive with annual program costs of $3,400,000; $1,400,000; and $1,350,000 to cover management and enforcement of Forest Practice Acts. Nonpoint source program personnel for several states like Vermont and South Carolina anticipate no future funds for program operations but will continue programs using existing resources.

The add-on costs of complying with BMP's can be substantial when considered statewide, even though most BMP's are designed to be cost-effective. For a few states, estimates of add-on cost for compliance with Forest Practice Act rules have been developed. These cost estimates are included in the attached report.

Direct quantification of benefits resulting from the silvicultural Section 208 programs are not available. A major emphasis in the EPA strategy for FY-83 is to aid states in securing information to estimate benefits. Although these estimates are not currently available, there are several indirect measures -- described in the attachment -- of benefits to the forestry community resulting from nonpoint source protection programs.

Probably the best measures of benefits resulting from the nonpoint source control programs are the generally favorable assessment of program accomplishments by state agencies, and the decreases in citizen complaints about forest practices. These favorable assessments and enforcement records indicate that silvicultural nonpoint source programs are protecting water quality, which is the ultimate benefit and goal of the Section 208 program.

V. API/NFPA Support Section 11(g) of S. 431

Section 11(g) of S. 431 states that:

> "The Administrator shall, in consultation with appropriate local, State, and Federal agencies, public and private organizations, and interested individuals, conduct a study of the effects and methods of control of pollution from nonpoint sources and report the results of such study to the Congress not later than one year after the date of enactment of the Clean Water Act Amendments of 1983."

API/NFPA support the objectives of this section. We cannot speak authoritatively about other categories of nonpoint sources of pollution. However, based upon NCASI's research, we believe additional information would be useful to assess: (1) the effectiveness of current Section 208 silviculture nonpoint source control programs; (2) the costs and benefits associated with these programs; and (3) the value of federal funds to assist in further program implementation. We hope to work closely with the Congress, EPA, and other interested groups should this provision be passed into law.

VI. Conclusion

During the four year period of 1979-1982, silvicultural nonpoint source control activities, which were promoted by Section 208 of the Clean Water Act, have matured from plans developed from preliminary problem assessments to operating and remarkably successful programs.

In conclusion, the overall status of silvicultural control programs can be described as good. Many states have conducted formal field investigations and have found their programs to be working. Other states have made adjustments in response to identified problems, in order to improve the effectiveness of their programs. Still other states are planning or have underway, program assesssments.

The majority of state agency personnel that NCASI surveyed felt that onpoint source policies had been incorporated into their forest management activities, and that the forest industry was also incorporating nonpoint source concerns in its planning and operations. The effectiveness of the nonpoint source program is probably best manifested in the regulatory exemptions accorded operations which conduct their activities using BMP's, and in the reductions in forest water quality complaints reported by several states.

We understand that future NCASI surveys will attempt to determine whether these apparent improvements are an artifact of the economic slowdown or represent true practice improvements. Some preliminary survey data indicate that BMP's are being used more frequently in normal forest operations.

Mr. Chairman, I would like to thank this Subcommittee for the opportunity to testify. I will be happy to answer any questions you may have.

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NATIONAL FOREST PRODUCTS ASSOCIATION

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Michael C. Farrar
Vice President
202-797-5784

July 8, 1983

The Honorable David Durenberger
Committee on Environment and
  Public Works
U. S. Senate
Washington, D.C. 20510

Dear Senator Durenberger:

As you know, the American Paper Institute and the National Forest Products Association (API/NFPA) have a strong interest in initiatives to control nonpoint source pollution under the 1977 Clean Water Act. During our April 7 testimony before the Environmental Pollution Subcommittee we reflected on our industry's involvement with state and federal nonpoint source pollution control efforts since 1975, and reviewed the current status of state silviculture nonpoint source control programs developed under Section 208 of the Act.

Our commitment to reasonable nonpoint source control programs has been reflected in our support for the Section 208 planning process. We are interested in controlling nonpoint source pollution in order to: (1) foster good forest management; and (2) avoid, at our manufacturing facilities, unnecessary treatment -- beyond Best Conventional Technology -- for biochemical oxygen demand and suspended solids on streams where uncontrolled nonpoint sources contribute to these water quality problems.

In the context of our traditional interest in this issue, we are encouraged by the prospect of positive Committee action on the next step in controlling nonpoint source pollution, now that Section 208 plans have been completed. We are particularly pleased with the interest that you, Senator Chafee, and Senator Bentsen have taken in this matter. We would like to continue to work with you and the Committee to develop a reasonable proposal for dealing with nonpoint sources. Indeed, we will be meeting with your staff in the near future to discuss this issue.

While we are eager to move forward with legislation in this area, we continue to have significant reservations with certain of the proposals that we have reviewed to date. With respect to the specific legislative language that you placed before the Committee on June 28, API/NFPA have five areas of concern.

First, we feel that the element of compulsion injected by the financial sanctions in Section (g) of your proposal conflicts with current EPA policy under Section 208 to foster cooperative programs to implement nonpoint source controls. Our experience with the Section 208 program suggests that an approach which emphasizes education, training, and incentives offers the best chance of success, especially in dealing with rural nonpoint source problems. We fear that a controversial sanctions program may make states reluctant to honestly identify problems and develop control programs. API/NFPA, thus, support an approach which emphasizes incentives rather than sanctions.

Second, we are troubled by the proposition in Section (c) of the proposal, that the federal government would directly implement nonpoint source controls in a state which does not develop a program. In our view, there are very real institutional and resource limitations that would be faced by EPA or any federal agency attempting to implement, monitor, and enforce nonpoint source controls at the state level. We would like to work with you and your staff to suggest a more appropriate course of action. One possibility would be an EPA assessment and report to Congress outlining suggested federal remedies for states which do not act.

Third, we have difficulty with the Section (b)(1)(D)(i) requirement that all states must implement nonpoint source controls within 48 months. The local variability of nonpoint source problems makes it imperative that states be afforded varying time schedules to implement necessary controls. A set, uniform deadline for compliance will have a chilling effect on the states' willingness and ability to consider a broad range of alternative implementation programs. We prefer a schedule of accomplishments for each state, developed as part of the implementation plan and approved by EPA.

Fourth, we are most reluctant to abandon the concept of "best management practices." The BMP approach has fostered the development of controls that are: (1) technically and economically feasible; and (2) applied in a site-specific fashion by forestry professionals. Both of these elements of the BMP approach are absolutely essential to the development of reasonable controls. We have experienced good results, to date, in working with state agencies -- including the Minnesota state forestry and water quality agencies -- in developing BMP's.

By contrast, the alternative, "average practice" approach embodied in Section (b)(1)(D)(i) of your proposal does not appear to emphasize the site-specific nature of nonpoint source controls, or the need for professional judgment in implementing the necessary practices. This is one area that we would like to discuss further with you, since we currently favor the BMP concept.

Finally, it is our position that the completed Section 208 nonpoint source control plans should, to the extent possible, serve as a springboard for developing and implementing nonpoint source management practices. We would be reticent to endorse a new round of planning to guide implementation activities. While the Section 208 data base may need to be supplemented in certain areas, it is the best information source available at the present time and should serve, where feasible, as the foundation for any efforts initiated by new legislation. You may agree with this proposition, but it is not implicit in the language of your June 28 proposal. We would like to work with you to craft language to define the relationship between the Section 208 planning process and any newly-authorized implementation programs.

Please do not hesitate to contact us if additional information is needed. Once again, we appreciate your interest in this important issue. We look forward to working with you and the Committee to secure passage of what we hope will be the Clean Water Act Amendments of 1983.

Sincerely,

Michael C. Farrar

Michael C. Farrar

ACEC File #700.01
728.18

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July 20, 1983

The Honorable Robert T. Stafford
Chairman
Committee on Environment and Public Works
United States Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Stafford:

The American Consulting Engineers Council (ACEC) is pleased to provide these comments on the proposed amendments to the Clean Water Act on non-point sources of pollution. We request that this letter be included in the record of the Subcommittee's hearing on this subject on July 19, 1983.

ACEC supports reasonable non-point source controls and has since their introduction in Section 208 of the Clean Water Act. Many of our member firms were actively involved in the non-point source planning process and performed the studies necessary to determine the impact of stormwater run-off pollution on streams to determine water quality standards. ACEC, likewise, questioned the need for many advanced waste treatment projects, their cost and delays for their approval, based in part on the lack of proper consideration of non-point source pollution in the establishment of municipal treatment discharge permits.

We are concerned, however, by the amendments proposed by Senator Durenberger. It has been our experience that non-point source controls are far more difficult to develop and enforce than point source controls. Just the measurement and identification of non-point sources can take years since these sources vary with the season, the land uses involved, the ratio of permeable to impermeable soils and surfaces in the watersheds which contribute pollution to the streams.

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Many states and localities, moreover, have not legislated the necessary statutes and ordinances to authorize control of non-point sources for the various land uses. If Congress chooses to make non-point source control a regulatory priority through these amendments, it may take many states four years to amend their municipal corporation laws and general land use laws to authorizes the controls necessary.

Senator Durenberger has correctly identified non-point source management as a state and local responsibility. We believe it is appropriate for Congress and EPA to provide incentives and even modest resources for the identification and management of priority streams in which non-point sources are significant contributors of pollution. The water quality management standards states are required to develop will be far more accurate if non-point source evaluations and impacts are included.

Federal controls in the form of cross-cutting sanctions, as suggested in the amendment (Section 11(f)), will, however, be counterproductive to encourage states and local governments to develop control strategies in the implementation plan described in section (b). This restriction could apply to everything from Farmer's Home loans to water resource project grants and even to alternative technology grants for land treatment systems. It could cover federal assistance for any form of construction including housing, schools, road, airports and wastewater treatment plants as well.

We agree that non-point sources are a significant form of water pollution which must be controlled if we are to achieve the goals contemplated by Congress in the Clean Water Act. We further agree that municipal and industrial point sources have received most of the regulatory attention and funding commitments. But we disagree that non-point sources can be regulated and enforced in the same manner as end-of-pipe, technology-based standards point sources. Moreover, four years appears to be an arbitrary and unrealistic deadline, especially in light of the additional environmental regulatory burdens accepted by the states, and the extension of industrial and municipal compliance deadlines to 1987.

In 1980 EPA published a decade compilation of pollution control which included case histories. Three projects were cited under non-point source mitigation, the Monongahela River and Dents Run in Pennsylvania, Black Creek in Indiana and the Colorado River in six western states. The project summaries are attached. Each presented a different non-point source problem; the Monongahela, mine run-off; Black Creek, agricultural run-off; the Colorado, salinity control. Each project required 5-8 years to begin to achieve results after massive federally-funded studies, substantial local, state, federal negotiations and a few law suits.

Even in places where there has been substantial local cooperation, state involvement and federal support, non-point source control strategies require many years to implement.

In the Occoquan Reservoir in Northern Virginia a major non-point source study was performed as part of the effort to establish appropriate treatment levels for a major sewage treatment plant. The study took more than two years. Evaluation of the data and development of control strategies required another year. But the development and acceptance of an interjurisdictional storm water and land use control document required almost three years of careful and exacting negotiation.

In the San Joaquin delta in California, major studies of irrigation return flows and the impact of seasonal storms on one of the largest of fresh water sources in California took more than five years. Despite general agreement that something must be done, implementation of major control systems for salt water intrusion and other agricultural run-off has not been resolved.

ACEC members performed most of these Section 208 funded studies. No two non-point source studies are ever alike. The proper mix of control strategies is difficult to determine. There are often no single answers but a range of alternatives with different costs and impacts on local landowners.

Many excellent suggestions have been made to modify the proposed language of the amendment.

- o Offset credits for non-point source nutrients and toxics prevented from entering streams against advanced waste treatment discharge requirements could be a powerful incentive to local governments to implement non-point source plans.
- o Negotiated state plans with timelimits established by the states and approved by EPA would permit flexibility to respond to the local character of non-point source problems. Such a contractual arrangement with self-enforcing penalities if states miss their own imposed deadlines will encourage more implementation of non-point source controls strategies than arbitrary national compliance dates which bear no relation to problems, resources or institutional constraints. This approach will encourage accountability and commitment to achieving non-point source reductions, not resentment over an additional onerous federal regulatory burden.
- o Ten year pollution control contracts with farmers which some states have developed with modest grant or loan programs have encouraged many in agriculture to save their topsoil and reduce irrigation and energy requirements, as well as reduce run-off pollution.

There is much experience which EPA, states, engineers, industry and agriculture have had with non-point source controls. But such experience should not be given such short attention as one day of hearings and hastily drawn legislative language with little or no measure of the likelihood of success or of the cost, if passed.

We urge the Committee to give this important water quality issue the attention it deserves. We suggest you defer any non-point source amendment until a proper record has been developed and analysis performed. ACEC and its members would be pleased to assist in developing such a record.

We urge you to defer consideration of a non-point source amendment at this time.

Sincerely yours,

William J. Birkhofer
Managing Director
Governmental and
International Affairs

WJB/jr
Attachment

United States
Environmental Protection
Agency

Office of
Planning and Management
Program Evaluation Division

EPA

National Accomplishments in Pollution Control: 1970-1980

Some Case Histories

December, 1980

Prepared by:
The Office of Planning and Evaluation
in cooperation with
The Regional Offices
The Office of Public Awareness, and
The Audio Visual Support Branch

Minimizing Nonpoint Source Pollution

Many activities not usually thought of as polluting our waters—construction, farming, mining, and forestry—can, if proper precautions are not taken, set in motion processes of runoff and erosion that may seriously degrade the quality of our streams and lakes.

The wastes from these "nonpoint" sources have added substantially to the pollution of the Nation's waters. Finding ways to control these sources now constitutes a major environmental challenge. In some places the problem has been attacked already with some success.

The Monongahela River and Dents Run: Pollution from the Mines

The cleanup of the upper two-thirds of the *Monongahela River* is an example of success in cleaning up pollution from mines. The rugged, scenic Monongahela begins at the confluence of the West Fork and Tygart Rivers in West Virginia and flows for 128 miles northward into Pennsylvania, joining the Allegheny River at Pittsburgh to form the Ohio River. Its coal-rich basin is one of the most intensively mined regions in the world.

During the 19th century the Monongahela supported a profitable fishing industry. Studies in 1886 identified 40 fish species, including the pollution-sensitive walleye and muskellunge. But by the early 20th century acid mine drainage—highly acidic runoff from active and abandoned coal mines—had ravaged the small tributary streams and polluted the upper reaches of the Monongahela from Fairmont, West Virginia, to Charleroi, Pennsylvania. In the lower portion of the river from Charleroi to Pittsburgh there was the additional burden of pollution from heavy industrial development. Consequently, almost all of the fish in the river were killed.

By 1950 the Monongahela had become an aquatic wasteland. Acid mine drainage on the upper river brought low pH levels, severe turbidity, bottom deposits of chemical precipitates, and high concentrations of iron, manganese, and sulfate. Not only were fish unable to survive but boats, dams, and instream facilities—including bridges—were being attacked by the river's corrosive waters.

Steel mills and coke plants on the lower river near Pittsburgh also contributed to the Monongahela's heavy pollution burden by dumping untreated phenols, oils, greases, cyanide, organic coal tars, ammonia, and suspended solids into the water. Conditions were made worse by the flow of untreated sewage from the communities that lined the River.

In 1957 the Ohio River Valley Water Sanitation Commission and the University of Louisville conducted a fish resource study. At a typical monitoring station on the Mongahela, 50 miles downstream from the West Virginia state line, only two small bluegill sunfish were found. The pH levels at the station were extremely low—in other words, the water was highly acidic—and the river was pale chartreuse in color.

The major turning point in the campaign to save the Monongahela came on December 17 and 18, 1963, when conferees met in Pittsburgh to discuss the pollution of the river and its tributaries. They agreed that the major problem was acid drainage from active and abandoned mines. (Indeed, mine drainage is the principal cause of acidic conditions nationwide.) Once it was agreed that the mines were responsible for the acidity problems along the Monongahela, all of the mines were inventoried. In 1965, the active coal mines were required to treat their discharges to make them alkaline rather than acidic and thus compensate for the prevalent acidity. Discharges were also to contain no more than 7 milligrams per liter of iron. Pennsylvania and West Virginia stepped up enforcement activity, and State funds were earmarked for research and development.

A long and persistent campaign to clean up the mines and the discharges from local industries and municipalities began to pay off, and conditions improved. Water quality monitoring records from the late 1960's and early 1970's showed increasingly higher pH levels, and thus less acidity in the river's upper reaches. Pollution-sensitive fish returned—among them largemouth bass, catfish, and emerald shiners.

The steel industry appealed the deadline and the effluent limitations in its permits, and a round of negotiations followed. In September 1976, EPA reached an agreement with U.S. Steel, the largest industrial discharger on the lower Monongahela, on final discharge limitations for 72 of 87 outfalls. Control of the remaining outfalls was to be accomplished, under a phased compliance schedule, by November 30, 1981.

Actions were also taken to control the municipal discharges on the river. Since 1970 EPA has awarded grants to 17 Pennsylvania communities to assist in the construction of secondary wastewater treatment facilities, including a large grant to the Allegheny County Sanitary Authority for the secondary treatment plant serving Pittsburgh. On line since 1973, it serves 1.25 million people from McKeesport to Pittsburgh and treats 200 million gallons of municipal and industrial wastewater daily. Additional EPA planning grants have been awarded to study industrial discharges, groundwater contamination, and sewer problems.

The lower reaches of the river, while vastly improved, still have far to go. Discharges from the heavy industry and the active and abandoned mines between Charleroi and Pittsburgh continue to result in violations of water quality standards. But the lower portion of the river is improving; carp and bullheads have returned. EPA and the States have issued permits to the majority of point-source dischargers.

Dents Run flows into the Monongahela near Morgantown, West Virginia. A demonstration project on the Dents Run watershed has shown how pollution can be controlled at both active and abandoned mines.

Smoldering gob piles have been reshaped, covered with fertile soil, and replanted. Hydrated lime treatment plants have eliminated much of the acid mine drainage and the bright orange color in the water. The pH in the 14.6-square-mile watershed has risen from an average of 3 (highly acidic) to 6 (slightly acidic). And local residents have reported minnows in the upper portion of the watershed.

As a joint demonstration project by EPA, the West Virginia Department of Natural Resources, and the Consolidation Coal Company, the Dents Run project has worked well. It has reclaimed over 400 acres of strip-mined land and minimized the acid mine drainage problem from the reclaimed land.

The cumulative impact on the Monongahela of such efforts as those on Dents Run has been remarkable. But the cleanup of Dents Run highlights the fact that the Monongahela's revival has been a team effort. The West Virginia Department of Natural Resources, the Pennsylvania Department of Environmental Resources, the region's mining industry, and EPA worked together with success—particularly on the river's upper reaches. Today there are bass tournaments on the West Virginia portion of the Monongahela. Muskellunge frequent the river's lower reaches, and hikers and boaters are again a common sight on its banks on warm summer days. Considered a "dead" river for 70 years, the Monongahela now has new life.

Black Creek: Controlling Pollution from Agriculture

Since 1972 the Allen County Soil and Water Conservation District, with assistance from the U.S. Department of Agriculture's Soil Conservation Service, Purdue University, and the University of Illinois, has been investigating non-point source pollution in a 12,000-acre subwatershed of the Maumee Basin in Allen County, Indiana. Funded by a grant from EPA and known as the *Black Creek Project*, it was the first detailed look at the contributions of agriculture to the degradation of water quality.

The study was a research and demonstration project aimed first at understanding the impact of agriculture on water quality in the basin of the *Maumee River*, which drains into Lake Erie, and second at implementing appropriate measures to minimize any adverse effects discovered.

The project was designed to show whether traditional soil and water conservation programs have a significantly beneficial impact on water quality, and whether voluntary programs, encouraged by incentive payments, produce land use practices effective in improving water quality.

After five years of effort, investigators were able to draw some tentative conclusions concerning the impact of agriculture and land use on the Black Creek environment. The project showed that nitrate loadings typical of agricultural watersheds are not high enough to threaten drinking water standards if conventional controls on nitrate use are applied, but that phosphate concentrations were high enough to threaten the water quality goals for Lake Erie. As expected, significantly greater sediment loadings were produced during high runoff periods.

The conventional methods for controlling nitrates include careful scheduling of fertilizer application and reducing the amount of nitrogen in the fertilizer used. The study showed that the nitrate levels detected in Black Creek do not justify other, more stringent control measures.

Although phosphate levels were high enough to be of concern, the study indicated that significant reduction of phosphate levels can be achieved through control of sediment.

Simulated rainfall tests demonstrated that raindrop impact is of prime importance in the detachment of soil particles, which in turn results in erosion and high sediment in the stream. Farming techniques which maximize surface residue, thereby providing better soil cover and subsequent protection from the erosive effects of rainfall, were found to be the most important practices in preventing erosion.

Other practices found to prevent sediment from reaching the waterway included establishing vegetative borders around fields, constructing terrace systems to shorten slopes, and constructing sediment basins.

These pollution-minimizing practices have been formalized as "best management practices," and have been applied widely throughout the Black Creek basin.

The investigators developed a computer model called ANSWERS to simulate sediment production and transport. It helps identify areas within small watersheds that have a proportionally greater impact on water quality. The model is useful for water quality management planners who need to identify those areas within a basin where control of erosion is most critical to success of the areawide plan.

The Black Creek project has been accepted by the public. It has led to the use of best management practices throughout the Black Creek basin and has provided a data base that gives us a better understanding of the factors contributing to non-point pollution from agriculture and the best methods for keeping such pollution to a minimum.

The Colorado River: A Salinity Problem

Concern for water in the *Colorado River Basin* focuses on quantity—the supply available—and quality, particularly salinity. These two concerns are, in part, interrelated. The situation in the Basin is a classic example of extreme competition for a very limited resource—water. Although the headwaters of the Colorado River are in the mountains of Wyoming and Colorado, most of the basin consists of semi-arid and arid regions in Utah, New Mexico, Nevada, Arizona, California, and Mexico. The availability of water is often a limiting factor, both for human activities and for natural processes. Consequently, decisions regarding the quantity and quality of the basin's waters are viewed by many parties with great interest, concern, and emotion.

The combination of a basically arid climate, the geology of the region, and water-consuming human activity have created a serious salinity problem in the basin. Salinity is, in fact, the most serious basin-wide water quality problem on the Colorado River. The most significant natural contributions result from weathering, decomposition, and erosion of rock formations and soils in the basin. Among man's activities, irrigation is the primary contributor to Colorado River salinity. Other actions, such as grazing, water impoundment in reservoirs, the resultant evaporation, and the "exporting" of the river's waters also increase the salinity.

Salinity gradually increases as the river flows downstream. Consequently, the most severe impacts occur in California, Arizona, and Mexico. The lower basin States—together with Mexico—have therefore been bearing the brunt of the salinity in the form of lower crop yields and additional costs for public drinking water supplies. The most recent study indicates that in California and Arizona, the total damages attributable to Colorado River salinity are about $84 million a year. At the same time, Mexico has expressed grave concerns about the salts in the Colorado River water delivered to Mexico. In fact, the President of Mexico attributed Mexico's unwillingness to compensate for damages caused by the leaking oil well in the Gulf of Mexico to the salinity in the water delivered to Mexico.

In response to increasing concern over salinity, the seven states in the Colorado Basin joined with EPA and the Department of the Interior to agree in December, 1973 on a new salinity control policy. The policy provided the following:

- Salinity levels in the lower portion of the river would be maintained at or below 1972 concentrations, as previously agreed to by the States and the Federal Government.
- Salinity control would be treated as a basin-wide effort.
- Numerical criteria for specified points on the river were to be set by October 18, 1975.
- The States involved were to develop salinity control plans.

During late 1975 and early 1976, the seven States adopted water quality standards for salinity in the basin, working through the ad hoc Colorado River Basin Salinity Control Forum. EPA approved these standards in November 1976. In the meantime, the 1974 Colorado River Salinity Control Act provided for future funding and technical assistance to help control salinity. The Act also authorized programs to implement the agreed-upon salinity control policy and to improve the quality of the water reaching Mexico.

Progress in controlling salinity has been achieved in the midst of considerable frustration and controversy. The Environmental Defense Fund filed suit in District Court in 1977 alleging that the standards implementation plans did not contain sufficient provisions for adequate control of salinity. Counter-motions for summary judgements were filed during 1979. In October, 1979 the court ruled in behalf of the Federal defendants. In early December, 1979, the Environmental Defense Fund filed an appeal.

There has been some success at reducing salinity through improvements in on-farm irrigation practices. Considerable improvements have been accomplished in the Welton-Mohawk area and are beginning in the Grand Valley area. Funding to assist in the implementation of improved on-farm irrigation practices was recently approved by Congress. Other efforts include the continuing implementation of the NPDES permit policy on the control of salinity in urban and industrial discharges.

The Colorado River Salinity Control Forum recently completed the triennial review of Colorado River water quality standards for salinity. Individual States in the basin are now in the process of adopting the Forum's recommended standards revision package. The revised implementation plan identifies a greater role for areawide water quality management (208 programs), cites opportunities to improve on-farm irrigation practices, and calls for the development of State salinity strategies by the individual basin States.

Salinity problems in the Colorado River are particularly complicated. Involved are natural climatic and geologic processes, a variety of land and water use activities, complex State and interstate water allocation systems, and international concerns. An additional factor looms on the horizon. The upper Colorado River Basin is very rich in energy resources—oil shale, coal, and uranium. There is growing concern over the potential impact that development of these energy resources will have on the salinity problem.

So far, the 1972 salinity levels have been maintained in the lower mainstem. However, should energy and water development efforts proceed as projected, considerably more effort will have to be devoted to controlling salinity.

Association of State and Interstate Water Pollution Control Administrators

ASIWPCA

Robbi J. Savage
Executive Director
Secretary Treasurer

July 29, 1983

The Honorable Robert Stafford, Chairman
Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington D.C. 20510

Dear Senator Stafford,

The Association of State and Interstate Water Pollution Control Administrators is submitting the enclosed comments on future nonpoint source control under the Clean Water Act.

State Water Pollution Control Directors appreciate the Committee's willingness to examine this very complex and difficult area. We have given the proposals put forth in the Committee considerable thought, in anticipation of participating in the Committee's recent hearings on this most important subject. While the Association was not provided the opportunity to testify on nonpoint sources, we would like to provide the collective perspective of the States for your deliberations. Our comments, which are based on extensive first hand experience in nonpoint source planning and control, should be useful as you proceed with Committee action.

As our testimony indicates, there is an important role for the Federal government in nonpoint source control but we are concerned that momentum and public support for nonpoint source implementation be maintained. National policy must be fully cognizant of the technical and institutional basis necessary for a workable nonpoint source control program.

The Association looks forward to working with you and the Committee in reauthorizing the Clean Water Act.

Sincerely,

Robbi Savage

Robbi J. Savage
Executive Director

cc: Ron Outen
William Corcoran

Enclosure

Hall of the States • 444 North Capitol Street, NW, Suite 330 • Washington, D.C. 20001 • (202) 624-7782

Association of State and Interstate Water Pollution Control Administrators

Association of State and Interstate Water Pollution Control Administrators

Testimony on Nonpoint Source Pollution Control
Before the
Senate Committee on Environment and Public Works

July, 1983

As the National organization of State and Interstate officials who implement the Clean Water Act on a daily basis, the Association of State and Interstate Water Pollution Control Administrators and their membership have addressed nonpoint source pollution problems at the local and state level for over 20 years. In this capacity, ASIWPCA is uniquely qualified to comment on the appropriate roles of States and the Federal government in nonpoint source pollution abatement.

ASIWPCA's position on nonpoint sources calls for the integration of §208 planning activities into the baseline water program under §106 and 303(e) of the Act. It does not address additional authorization of funding for nonpoint source.

Given the introduction of National legislation expanding beyond the Association current position, ASIWPCA President J. Edward Brown called upon the ASIWPCA Water Quality Management Task Force to develop comments representative of the collective views of some 20 State Water Pollution Control Agencies. With extensive discussions, coordination, and comments by ASIWPCA members, the following is provided to the Senate Committee on Environment and Public Works for their consideration in reauthorizing the Clean Water Act.

I. SUMMARY RECOMMENDATIONS

The Congressional concern over nonpoint source problems is constructive. There is general agreement that there are serious nonpoint source problems. The issue is not whether there is a Federal role, but what kind is necessary, workable, and supportable by the public.

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The Association of State and Interstate Water Pollution Control Administrators is convinced, in making any revision to the National nonpoint source program, that Congress should provide States with maximum flexibility to develop and administer appropriate site specific control programs. States do not need or want another §208 nonpoint source planning program but should direct their attention to implementation of the plans already certified and agreed to by the Federal government.

National incentives can be a useful tool for fostering these controls. However, States should have the opportunity to tackle nonpoint sources problems in the the most appropriate, most often a site specific approach. States do not believe that a larger, regulatory Federal role is necessary or constructive to nonpoint source pollution abatement. While States have been able to negotiate appropriate work plans with the US EPA, no one set of deadlines or requirements can apply to all conceivable categories or the millions of nonpoint sources.

ASIWPCA recommends that Congress continue a voluntary approach but hold States fully accountable for achieving the goals of the Act. State progress should be evaluated to isolate those areas where a mandatory program may be needed and to collect the information necessary to develop an appropriated Federal response. We cannot emphasize enough that in our professional opinion, such data does not currently exist -- primarily because the program is just gaining momentum.

It is extremely important in this process that we maintain the public support which has been largely responsible for the progress achieved. An expression of firm Congressional intent to move the Federal government into regulation of nonpoint sources if States do not come to grips with the problem is powerful motivation to get the job done.

II. INTRODUCTION

The Association of State and Interstate Water Pollution Control Administrators commends the Committee for its concern and appreciation of nonpoint source pollution problems. The efforts of Committee staff and members to grapple with this difficult issue indicates great fortitude. We are hopeful that the National dialogue will benefit Clean Water Act objectives.

III. BACKGROUND

There is no question that many of the Nation's rivers and lakes are adversely impacted by nonpoint sources. By their very nature, these problems must be dealt with differently. Whereas, point sources of pollution can be relatively easily identified and treated at a specific discharge point -- nonpoint sources do not have a defined point of origin. They can be extremely diffuse or, at the other extreme, cover extensive areas and require a different management scheme.

The major sources of nonpoint pollution include urban, agriculture, silvaculture, mining, construction, natural causes, hydrological modification, saltwater intrusion, residuals, and irrigation. Each of these categories has various Best Management Practices (BMPs) for treatment. Very few generalizations can be made nationally among these categories:

o The priority of nonpoint source water quality problems varies.

o BMP's differ across the nation depending on the geographic region, climate, social factors, etc. What may work well in Virginia may not work at all in Nevada. What works in one part of a State, may not in another.

o Voluntary programs are appropriate in most areas, whereas regulatory programs may be indicated in others.

In short, nonpoint source pollution is a very localized problem for which there are no easy answers or quick fixes. It is not amenable to regulation from the shores of the Potomac. Extensive time and financial resources will be required to implement controls locally. Improvements in receiving waters may take time to achieve because of past influences especially in aquifers and lakes. After a nonpoint sources problem is abated, constant surveillance and maintenance is needed to ensure that the problem does not revert back to the original state.

IV. PROGRESS

The National Program should build on the substantial statewide progress made under the Clean Water Act in nonpoint sources control. The States are grateful for the Committee's full support to those activities under §208.

We believe the §208 program was instrumental in identifying key nonpoint source pollution problems and effective abatement measures. Since 1976, States have adopted extensive §208 nonpoint source pollution control plans which have been certified by the US EPA. In the process, many strong working relationships developed among Federal, State and local governments and the public.

These activities provide an excellent basis for implementation. Indeed many States have begun implementing their plans on a regulatory and voluntary basis -- many without Federal assistance. For example, seventeen States have cost-sharing programs to assist landowner implementation of water quality related requirements. At the same time, States recognize that much remains to be done and believe the Federal government can make a very useful contribution.

V. SPECIFIC RECOMMENDATIONS

If National legislation on nonpoint sources control is to be enacted, the ASIWPCA recommends the following principles be applied in defining National policy:

A. State Role

States must have flexibility to develop and implement nonpoint sources programs as necessary to meet local needs whether regulatory or voluntary -- consistent with US EPA certified §208 plans.

B. US EPA Role

As States implement, the US EPA needs to move concurrently to:

- assess nationally accomplishments and effectiveness of existing nonpoint source programs

  States need this information and would appreciate the US EPA's assistance. The joint ASIWPCA project with US EPA -- the States Evaluation of Progress (STEP) -- is an initial attempt get this information (see attachment) but further action will be required . This could, for example, be the basis of a coordinated technical information exchange between States and the scientific community.

- continue research on effectiveness of BMPs

- provide technical assistance to the States

States programs are beyond the point where a large amount of Federal oversight, rules or regulations is necessary or constructive.

§208 plans have already been certified by the Federal government as acceptable. Heavy Federal oversight would only duplicate that which was accomplished under §208 and frustrate State efforts to implement nonpoint source controls on a site by site basis.

C. National Program Objective -- Implementation

No new National planning programs are needed. The Federal government and the States have invested millions of dollars in §208 plans -- we do not need to reinvent the wheel. The nonpoint sources needs confronting the Nation today relate to implementation. States in many important areas have advanced beyond the point of needing national demonstration projects.

States have adopted sound, US EPA certified nonpoint sources control plans and should be able to implement them without further ado. The Model Implementation Program, the Experimental Rural Clean Water program, etc. have been useful, but it is time to go from the prototype phase to full fledged State implementation programs. The ASIWPCA does recognize, however, that in some cases planning and prototype projects are useful. Therefore, States should have the flexibility to use funds appropriated from existing National programs for such activities before moving to statewide implementation.

D. Priorities

Available funds should be allocated according to each State's top priority water quality problems.

Unless the program carefully focuses on priorities we will not get a good return on our investment in terms of water quality improvements.

E. The National Program -- Incentives or Sanctions

States must be given the opportunity to implement their US EPA certified §208 plans. After a realistic time period, if Congress is not satisfied with a States's progress, appropriate action should be taken based on the factual situation.

Any National program established should provide States with an incentive for implementing nonpoint source controls otherwise §208 will have been a waste of taxpayer money. The Association appreciates the concern about-- what the Committee has termed -- recalcitrant States but Federal sanctions are not necessary at this time.

US EPA should not be placed in a position of threatening Federal promulgation and implementation of plans if agreement with a State cannot be achieved under what are very short time tables. There is no demonstrated need for such authority and the information to make such comprehensive judgements is simply not available. Several questions come to mind:

- o In fairness, why not give State §208 nonpoint source plans a chance to work?
- o Realistically, how can the Federal government develop or implement such plans acre by acre? --The resource and information requirements could be enormous.
- o Why take this approach now? -- A heavy Federal hand can easily backfire to erode the support for nonpoint source control which States and the Federal government have worked so hard to achieve.

o Where would nationally developed sanctions be appropriate? -- Recalcitrance is not the only reason for not implementing a full scale nonpoint source program and sanctions are not always the appropriate response. Other factors include:

- existence of other more critical pollution problems
- minimal water quality impact
- high implementation costs
- inadequate data
- natural conditions

F. Accountability

States must be held accountable for controlling nonpoint sources pollution. The effectiveness of the National program must be assessed on a continuing basis.

It is clear from the national dialogue that there is a great deal of confusion over the status and direction of the nonpoint sources program. The resulting concern is very understandable. States and the Federal government should work together to assure the necessary information is provided. STEP and US EPA oversighc are important mechanisms.

G. Interstate Situations

States should continue to work together in solving interstate nonpoint source problems. There is no demonstrated need among the States to disrupt current arrangements and establish a broader Federal presence in interstate situations.

Current arrangements for resolving nonpoint source problems among States have been productive under very complex and difficult circumstances-- e.g. Colorado River, Chesapeake Bay. The 6 ASIWPCA interstate agencies along the Ohio River, Delaware River, Susquehanna, Potomac, Hudson, and in New England have also historically been a successful conduit for resolution of interstate problems. States appreciate the Federal government's long history of fostering these activities and encourage continuation of the "as needed" Federal involvement.

H. Cross Compliance

The benefits of cross compliance should be explored, but State water directors question the need for broad cross compliance provisions. The impacts of such an approach should be carefully and fully evaluated before enactment.

The very broad provisions of the Committee's proposal raise implications for a vast spectrum of Federal activities that may have neither been contemplated nor intended in the §208 planning process. Such activities could involve Federal land or facility management (e.g. the Corps of Engineers, Department of Defense, and the Bureau of Land Management).

Such a provision would need to be backed by a commensurate Federal committment. For example, if such language were to be codified it should mandate that Federal agencies assist State and local units of government in problem assessment and pollution abatement. When a State determines that pollution sources relate to Federal activities, that Federal Agency must then be required to clean up its pollution. This may entail, for example, setting aside a portion of that Federal agency's budget for nonpoint source pollution control.

I. Planning Integration

Any National nonpoint source program established should be an integral part of existing programs under §106.

In the aftermath of §208, yet another new program will be viewed with scepticism and incorporation into §208 may sent the wrong signal that planning rather than implementation is the intended result. Nonpoint source provisions in the law should be consolidated with other planning provisions into §303(e) with maximum flexibility on the use of funds.

I. Timing of Requirements

Deadlines should be flexible and a matter for negotiation between States and the US EPA.

Arbitrary implementation deadlines conflict with certified §208 plans and do not recognize the variability of circumstances. Any deadlines established must be accompanied by a clearer articulation of what the Congress expects the States to accomplish.

Comprehensive plans cannot be prepared in 9 months and nor -- as §208 has conclusively demonstrated -- can the all problems be resolved in a 48 month time frame. Data gaps must be filled, priorities set, programs developed, and controls put into place over time as funding is available and cost-effective solutions are found. If we rush this process, we may lose public support and squander scarce taxpayers money on unproductive or poorly constructed strategies that yield little to no additional environmental protection.

President
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Edward Risley
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Committee to Preserve Assateague Island, Inc.

July 18, 1983

Please include this letter as part of the hearing record

The Honorable Robert T. Stafford, Chairman,
Senate Committee on Environment & Public Works,
United States Senate,
Washington, D. C. 20510

Dear Senator Stafford:

We feel that nonpoint source water pollution is one of the key issues that needs to be addressed in the Clean Water Act. We are delighted with the Durenberger-Chafee amendment to control nonpoint source pollution and hope you will make every effort to have it included in the final bill.

Nonpoint source pollution is one of major problems in Maryland, affecting many streams and rivers and, ultimately and seriously, the Chesapeake Bay. Maryland is aware of the problem, but, unfortunately, the Department of Environmental Programs, under which enforcement of nonpoint pollution regulations fall, lacks the manpower to monitor and check problem areas. Studies of Chesapeake Bay water quality problems show that one of the principal sources of pollution is from farm fields, with the run-off of herbicides, pesticides and fertilizers. Oil and gasoline from cars, which are washed into the waterways from parking lots and roads, are another source. Farming practices where tilling goes right up to drainage ditches or river banks cause tons of soil to be washed into the waterways.

The Durenberger-Chafee proposal is a needed first step in getting to the heart of the problem, and we hope ver much that it will be included in S. 431, the Clean Water Act.

With best wishes,

Sincerely,

Judy Johnson

Judith C. Johnson
President

We also think it is very important that no amendment to S. 431, which would permit cities to opt out of the national pretreatment program, be tagged onto the bill. It is critical that toxic industrial wastes be removed before industrial sewage enters sewage treatment plants and waterways.

The Clean Water Act needs strong language to protect all manner of wetlands, and ensure that the proposed new Corps regulations cannot take effect. We need to strengthen protection of non-tidal wetlands, wooded swamps, potholes, tundra and those areas that are infrequently inundated but are important to wildlife and act as a sponge absorbing flood waters.

NATIONAL COTTON COUNCIL OF AMERICA
EXECUTIVE BUILDING / 1030 FIFTEENTH STREET, N.W. / SUITE 700
WASHINGTON, D.C. 20005
TELEPHONE: (202) 833-2943

July 28, 1983

The Honorable Robert T. Stafford
Chairman
Committee on Environment and Public Works
U.S. Senate
Washington, D. C. 20510

Dear Mr. Chairman:

We respectfully request that this letter be made a part of the hearing record of July 19, 1983, on amendments to the Clean Water Act to reduce pollution from non-point sources.

The National Cotton Council is the central organization of the cotton industry, representing producers, handlers, and processors from coast to coast.

We support the intent of the Clean Water Act insofar as it is economically practical, and applaud your committee's special concerns with soil erosion in excess of naturally occurring levels.

Determining whether a particular field is being farmed in a manner to protect its soil involves a lot of individual judgment, however. For this reason, strict rules with punishment for violators will inevitably be unfair to some farmers, result in unnecessary costs, and perhaps fail to protect the soil in some cases.

In this instance, we believe more can be accomplished with a "carrot" than a "stick." Teaching and demonstrating soil-conserving tillage methods that actually do the job at less cost can go a long way toward achieving the desired goals. Incentive also may be provided in the form of tax deductions or credits for accomplishing desired results by whatever methods the farmer may devise.

We urge this approach to achieve acceptable soil erosion levels rather than denying farm program benefits to those who fail to comply with specific practices. Denial of benefits is likely to undercut program participation to the point that it is no longer effective in helping balance supply with demand. In addition the question of whether a farmer is in compliance would be subject to the judgment of individual bureaucrats with varying capability to make such assessments.

We appreciate the opportunity to present our views.

Sincerely,

Earl W. Sears

Earl W. Sears
Executive Vice President

EWS/ma

Save the Bay

July 15, 1983

Hon. Robert Stafford
Senate Office Building
Washington, DC 20510

I am writing you on behalf of Save The Bay, Rhode Island's largest environmental organization with 10,000 family members, in support of the Chafee-Durenburger proposal to control nonpoint sources of pollution.

Nonpoint source pollution is a significant problem across the nation and in Rhode Island. If erosion and runoff are not controlled, the national goal of fishable-swimmable waters will remain an empty dream. Nearly fifty percent of all pollutants entering the country's waters each year are from nonpoint sources.

In Rhode Island, nonpoint source pollution is one of the major causes of the degradation of the state's greatest natural and economic resource, Narragansett Bay. University of Rhode Island researchers estimate that between 4.5-10 tons of toxic copper and 34-70 tons of lead are washed into the upper portion of Narragansett Bay every year due to street runoff.

Moreover, the ill effects are not limited to salt water. Runoff from both urban and rural sources is threatening Aquidneck Island's drinking water supply which serves over 60,000 residents and the US Navy Installation at Newport. Agricultural runoff and sediments have already done great harm to five of the reservoirs on the Island. The sixth reservoir, the Easton Ponds system, which supplies 60 percent of the drinking water for Newport, is estimated to be half filled with sediment, and the quality of the drinking water is rated among the ten worst in the country, all due to nonpoint urban runoff. The situation has deterirated to the point where the city is considering abandoning the reservoir as a drinking water source but no alternative source of supply is available.

The Pawtuxet River, which originates at the pristine Scituate Reservoir contains in its lower reaches the dirtiest water in the state, also due in part to nonpoint runoff. State researchers have estimated that runoff from streets, rooftops, and parking lots of two shopping malls

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alone will prevent the river from meeting even Class C standards on a regular basis.

The Clean Water Act provided for studies of nonpoint source pollution, but not for controls. The Chafee-Durenburger proposal would solve this problem by requiring nonpoint source controls in those areas where they are needed to meet the water quality goals of the Clean Water Act. We strongly urge you to support this important proposal.

Cordially,

Trudy Coxe

Trudy Coxe
Executive Director
Save The Bay, Inc.

TC:sab

SCENIC
HUDSON INC
9 VASSAR STREET · POUGHKEEPSIE, NY · 12601 (914) 473-4440

July 25, 1983

The Honorable Robert Stafford
United States Senate
Washington, DC 20510

Dear Senator Stafford:

Scenic Hudson, Inc., a non-profit organization with over 12,000 supporters, has been the watchdog for the Hudson River Valley's natural, historic, scenic and recreational resources for more than 20 years. Scenic Hudson has been actively involved in efforts to improve the quality of the Valley's and the nation's rivers and streams, and is an active participant in efforts to maintain the environmental protections provided under the current Section 404 provisions of the Clean Water Act.

Scenic Hudson strongly supports the Chafee-Durenberger amendments to the Clean Water Act which would require the identification of bodies of water polluted by agriculture and urban runoff, and polluters to implement Best Management Practices (BMPs) within four years to control non-point source pollution.

Non-point source pollution has been studied for over a decade. It contributes as much as 50% of the pollution that reaches the nation's waterways each year. Non-point source pollution is also a major source of pesticide and other toxic pollution. The Chafee-Durenberger proposal sets up a system by which states, working with local agencies, establish management practices to be used to control non-point pollution. After the state plan is adopted (four-year period), the federal government may not give financial assistance to sources in violation of these management practices.

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Over the past ten years, the Hudson River has made a remarkable comeback, due largely to implementation of the Clean Water Act's provisions. However, there still is much work to be done to bring the River back to the standards that allowed past generations to enjoy fishing and swimming. The Chafee-Durenberger non-point pollution control provision is an essential part of this revitalization process.

Scenic Hudson urges your support on this issue and requests that our letter be made part of the hearing record.

Thank you.

Sincerely,

Klara B. Sauer
Executive Director

/rme

cc: The Honorable Daniel P. Moynihan
The Honorable Alfonse D'Amato

Wildlife Management Institute
Suite 725, 1101 14th Street, N.W., Washington, D.C. 20005 • 202/371-1808

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July 14, 1983

The Honorable Robert T. Stafford, Chairman
Committee on Environment and Public Works
Senate Office Building
Washington, D.C. 20510

Dear Senator Stafford:

The Wildlife Management Institute supports the inclusion of a non-point pollution program in the pending Clean Water Act amendments (S. 431).

Studies indicate that a majority of the sediment, nitrogen, phosphorus, pesticides, coliform bacteria and lead flowing into the nation's waters comes from non-point origins. This source of pollution, therefore, is a serious threat to human health as well as fish and wildlife.

We suggest that a non-point provision similar to that reported from the Environmental Pollution Subcommittee is most appropriate. We urge the Committee to include such language in S. 431.

I would appreciate having this letter included in the hearing record.

Thank you.

Sincerely,

Daniel A Poole

Daniel A. Poole
President

DAP:lbb

DEDICATED TO WILDLIFE SINCE 1911

CLEAN WATER ACT AMENDMENTS: NONPOINT SOURCE MANAGEMENT PROGRAM

WEDNESDAY, AUGUST 24, 1983

U.S. Senate,
Committee on Environment and Public Works,
Moorhead, Minn.

The committee met at 1 p.m., in the city council chambers, Moorhead, Minn., Hon. Dave Durenberger presiding.

Present: Senators Durenberger and Burdick.

Senator **Durenberger**. I wonder if before we start the hearing with the opening statements if I couldn't ask Morrie Lanning, the mayor of Moorhead, to come up and say whatever he may want to say about this particular event and the times in which we live, and any other profound statements from him.

STATEMENT OF HON. MORRIE LANNING, MAYOR, MOORHEAD, MINN.

Mayor **Lanning**. Thank you, Senator.

Senator Durenberger, Senator Burdick, welcome to Moorhead. We are very glad to have you here. We very much appreciate your willingness to come out and to interline, so to speak, and get the input from the people on this most important issue. The issue of water quality and the issue of soil conservation, et cetera, are very important to our Red River Valley, and I know you're going to receive a lot of good input from the people who are assembled here today.

Senator Durenberger, you look awfully good sitting in my chair. I'm a little nervous, though. I look at my nameplate? It's no longer there. Are you trying to tell me something or—welcome to Moorhead.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator **Durenberger**. Thanks, Morrie. I will start by welcoming everyone to this hearing of the Senate Committee on Environment and Public Works. With me on the platform, as you all know because you see so much of him here and you have for a long period of time, is my very distinguished colleague and long-time member of this committee, the senior Senator from North Dakota, Quentin Burdick.

The purpose of the hearing, as I'm going to summarize my statement, and as we say in Washington make it part of the record, is to gather information and ideas about the rather complex and important problem that's called by the technologists, I guess, nonpoint source water pollution. And the term encompasses in a very general way pollution from contaminated runoff and from irrigation return flows and a wide variety of those things as opposed to the sewer pipes, the effluent pipes of industries and municipal treatment plants. It's a problem that this committee has been working on for some time and very intensively in the last few months.

In hearings in Washington we have heard from about 30 different witnesses representing at least as many national organizations of all sorts from private individuals and from representatives of national, State, and local governments, and so far, I think it's fair to say that everyone has agreed that nonpoint source water pollution is an important national problem and the Clean Water Act is not doing enough about it. There also seems to be a close to universal agreement that State and local agencies, those that are concerned with water quality and those concerned with preservation of the land, already know a great deal about runoff control. We learned that this morning in a couple of hours touring around Clay County. We have learned that the problem, though national in its scope, is very different from one place to another. Sources vary and appropriate and practicable control techniques will also vary.

So this means that key decisions about what to do and how to do it need to be made, but they need to be made on the banks of the Red River of this country, that is at a State and local level, not on the banks of the Potomac.

And, lastly, there seems to be no dispute that while there are many sources of the water quality problems that we face, the major source is agricultural activities, and we might as well face up to that.

So those are some of the major areas of general agreement based on what the committee has heard so far. Hopefully we will go to markup on the underlying authorization legislation sometime this fall, so now we're addressing the problem of how best do we attack this problem that we face.

The committee has under consideration a bill which I helped to write which calls for the development of State nonpoint control programs and authorizes Federal funds to help support the programs. Under this approach, States would identify their most serious nonpoint source problems, urban as well as rural, identify appropriate and practicable management practices, and then devise an implementation plan that would get the management practices into place within 4 years.

The bill goes on to require that the Federal Government respects State and local law and regulations by not supporting activities that are inconsistent with the laws, the regulations, and the plans of State and local governments in which those activities will occur. And I will have a little more to say on that particular point later because it seems, from the statements we've already received, there is a good deal of confusion about what we are talking about in terms of cross-compliance and and words like that.

I'd like to be able to tell you that all the witnesses we heard in Washington embraced all the provisions of the bill that's before us, but obviously they did not. We who are engaged in writing legislation never are able to get off that easily. Some aspects of that bill have been the subject of considerable debate, some of that debate due to the misconceptions of the bill and some of it, I think, due to very honest differences of opinion.

Our purpose in coming here today is not so much to tell those of you who have come today what we have been doing as it is to get you to tell us what we should be doing. And I'm sure that my colleague, Senator Burdick, will agree with me that it is terribly important for the Congresss to take its work directly to the people who are going to be most affected.

So with that, and without belaboring the balance of this statement, we have a good bunch of witnesses here today. Before we ask the first group, which is a panel, to come forward, I would ask my colleague if he has any comments that he would like to make.

[Senator Durenberger's prepared statement follows:]

OPENING STATEMENT
SENATOR DAVE DURENBERGER

FIELD HEARING ON NON-POINT SOURCE POLLUTION

AUGUST 24, 1983

I WOULD LIKE TO WELCOME YOU TO THIS HEARING OF THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS. WITH ME ON THE PLATFORM IS MY DISTINGUISHED COLLEAGUE FROM THE NEIGHBORING STATE OF NORTH DAKOTA AND FELLOW MEMBER OF THE COMMITTEE, SENATOR QUENTIN BURDICK.

THE PURPOSE OF THIS HEARING IS TO GATHER INFORMATION AND IDEAS ABOUT THE COMPLEX AND IMPORTANT PROBLEM OF NON-POINT SOURCE WATER POLLUTION. THE TERM ENCOMPASSES, IN GENERAL TERMS, POLLUTION FROM CONTAMINATED RUNOFF AND IRRIGATION RETURN FLOWS AS OPPOSED TO THE EFFLUENT PIPES OF INDUSTRIES AND MUNICIPAL TREATMENT PLANTS. IT IS A PROBLEM THAT THE COMMITTEE HAS BEEN LOOKING AT FOR SOME TIME, AND VERY INTENSIVELY IN THE LAST FEW MONTHS.

IN HEARINGS IN WASHINGTON, WE HAVE HEARD FROM ABOUT THIRTY DIFFERENT WITNESSES REPRESENTING NATIONAL ORGANIZATIONS OF ALL SORTS, PRIVATE INDIVIDUALS, AND REPRESENTATIVES OF NATIONAL STATE AND LOCAL GOVERNMENT. SO FAR, I THINK IT IS FAIR TO SAY THAT EVERYBODY HAS AGREED THAT NON-POINT SOURCE WATER POLLUTION IS AN IMPORTANT NATIONAL PROBLEM AND THAT THE CLEAN WATER ACT IS NOT DOING ENOUGH ABOUT IT.

THERE ALSO SEEMS TO BE CLOSE TO UNIVERSAL AGREEMENT THAT STATE AND LOCAL AGENCIES, THOSE CONCERNED WITH WATER QUALITY AND THOSE CONCERNED WITH PRESERVATION OF THE LAND, ALREADY KNOW A GREAT DEAL ABOUT RUNOFF CONTROL. WE HAVE LEARNED THAT THE PROBLEM, THOUGH NATIONAL IN ITS SCOPE, IS HIGHLY VARIABLE ON A LOCAL AND REGIONAL BASIS. SOURCES VARY AND APPROPRIATE AND PRACTICABLE CONTROL TECHNIQUES VARY.

THIS MEANS THAT KEY DECISIONS ABOUT WHAT TO DO AND HOW TO DO IT NEED TO BE MADE AT THE STATE AND LOCAL LEVEL, AND NOT ON THE BANKS OF THE POTOMAC. LASTLY, THERE SEEMS TO BE NO DISPUTE THAT, IN MANY PARTS OF THE COUNTRY, IT IS AGRICULTURAL ACTIVITIES THAT ARE THE MAJOR SOURCE OF WATER QUALITY PROBLEMS.

THOSE ARE THE MAJOR AREAS OF GENERAL AGREEMENT, BASED ON WHAT THE COMMITTEE HAS HEARD SO FAR. WHERE WE BEGIN TO RUN INTO TROUBLE IS WHEN WE TRY TO ANSWER THE QUESTION: WHAT IS THE BEST WAY TO ATTACK THE PROBLEM ?

THE COMMITTEE PRESENTLY HAS UNDER CONSIDERATION A BILL, WHICH I HELPED WRITE, WHICH CALLS FOR THE DEVELOPMENT OF STATE NON-POINT CONTROL PROGRAMS AND AUTHORIZES FEDERAL FUNDS TO HELP SUPPORT THE PROGRAMS. UNDER THIS APPROACH, STATES WOULD IDENTIFY THEIR MOST SERIOUS NON-POINT SOURCE PROBLEMS, URBAN AS WELL AS RURAL, IDENTIFY APPROPRIATE AND PRACTICABLE MANAGEMENT PRACTICES, AND DEVISE AN IMPLEMENTATION PLAN THAT WOULD GET THE MANAGEMENT PRACTICES INTO PLACE WITHIN FOUR YEARS. THE BILL GOES ON TO REQUIRE THAT THE FEDERAL GOVERNMENT RESPECT STATE AND LOCAL LAW AND REGULATIONS BY NOT SUPPORTING ACTIVITIES THAT

ARE INCONSISTENT WITH THE LAWS, REGULATIONS AND PLANS OF STATE AND LOCAL GOVERNMENTS IN WHICH THOSE ACTIVITIES WILL OCCUR.

I'D LIKE TO BE ABLE TO TELL YOU THAT ALL THOSE WITNESSES I MENTIONED EAGERLY EMBRACED ALL THE PROVISIONS OF THAT BILL, BUT OF COURSE THEY DID NOT. WE WHO ARE ENGAGED IN WRITING THE LAWS NEVER SEEM TO GET OFF THAT EASILY. SOME ASPECTS OF THAT BILL HAVE BEEN THE SUBJECT OF CONSIDERABLE DEBATE, SOME OF IT DUE TO MISUNDERSTANDING OF THE BILL AND SOME OF IT DUE TO HONEST DIFFERENCES OF OPINION.

BUT OUR PURPOSES IN COMING HERE IS NOT SO MUCH TO TELL YOU WHAT WE'VE BEEN DOING AS IT IS TO GET YOU TO TELL US WHAT WE SHOULD BE DOING. I'M SURE SENATOR BURDICK WILL AGREE WITH ME THAT IT IS IMPORTANT FOR THE CONGRESS TO TAKE ITS WORK DIRECTLY TO THE PEOPLE WHO ARE GOING TO BE MOST AFFECTED. AND THAT IS WHY WE ARE IN THE HEART OF ONE OF THE MOST EXTENSIVE AND MOST PRODUCTIVE AGRICULTURAL AREAS OF THE COUNTRY, THE RED RIVER VALLEY. I DO NOT KNOW ABOUT SENATOR BURDICK'S SIDE OF THE RIVER, BUT MINNESOTA ALONE ACCOUNTS FOR 35,000 SQUARE MILES OF RED RIVER WATERSHED, ABOUT 90 PERCENT OF WHICH IS IN AGRICULTURAL USAGE, MUCH OF IT SUBJECT TO IRRIGATION AND DRAINAGE. AS IS OFTEN THE CASE, UNFORTUNATELY, THE WATER QUALITY OF THE RED RIVER REFLECTS THE ACTIVITIES IN THE WATERSHED -- FREQUENT PROBLEMS WITH SUSPENDED SOLIDS AND NUTRIENTS. AT THE SAME TIME, THERE IS A GREAT DEAL OF EXPERIENCE AND EXPERTISE HERE ABOUT RUNOFF CONTROL PRACTICES. MUCH GOOD WORK HAS BEEN DONE. I (WE) SPENT THE MORNING EXAMINING SEVERAL RUNOFF CONTROL AND LAND TREATMENT PROGRAMS IN THE AREA.

WHAT WE NEED TO DO IS FIND A WAY TO ENCOURAGE AND EXTEND GOOD PROGRAMS AND IMPROVE THOSE THAT NEED IMPROVING. TO HELP US DO THAT, EACH WITNESS HAS BEEN ASKED TO DISCUSS HIS OR HER PERSPECTIVE ON THE NON-POINT SOURCE PROBLEM AND TO GIVE US IDEAS AND VIEWPOINTS ABOUT HOW TO DEAL WITH IT EFFECTIVELY. ALL WRITTEN STATEMENTS WILL, OF COURSE, BE PLACED IN THE HEARING RECORD. BUT EACH WITNESS HAS BEEN REQUESTED TO SUMMARIZE ORAL TESTIMONY IN NO MORE THAN SEVEN MINUTES IN ORDER THAT ALL MAY BE HEARD. PLEASE ADHERE TO THIS LIMIT. I WILL ASK YOU TO CONCLUDE WHEN THE TIME IS UP.

OPENING STATEMENT OF HON. QUENTIN BURDICK, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator **Burdick**. Thank you, Mr. Chairman. I think this is a very important meeting indeed. The hearings in Washington have developed that we have a problem the magnitude of which we are determining right out here. I think this is one of the most important meetings we will have because it deals with a rich and large agricultural area. So I presume that most of the testimony will deal with matters affecting agriculture, such as farm runoff. When I say we are productive, I think we are the most productive area in the world here, and how we treat this problem and how we treat agriculture at the same time will be one of the questions that we are going to delve into in this hearing. So I think, Mr. Chairman, it's very appropriate that we hold this hearing right here in the Red River Valley.

Now the extent and magnitude of the problem will be developed here by the witnesses. How much of a problem is it? What does it effect? Those will be the inquiries that we will make. Step 2 will be, we have this problem, what are the remedies? How do we handle our agricultural plant? What do we do about the way we raise our crops and harvest our grains and all those things? Are there changes coming, are there changes needed?

And after we have been specific about what we ought to do, then we have to decide who's going to do it. Should the Federal Government do it? The chairman just said that the problems vary from State to State and region to region, and that would indicate that perhaps the State should do it because they are familiar with their own particular problems.

So I'm going to listen very carefully to all that you have to say about those three areas, and I think those are the three important areas as far as I am concerned. This is the message we will carry back to our committee when we meet again in Washington.

Senator DURENBERGER. Thank you very much.

Our first panel will include Dr. Duane Dahlberg of Moorhead, who is representing the Minnesota Pollution Control Agency; Mr. Francis Schwindt, director of the Division of Water Supply, North Dakota State Health Department; Mr. William Bryson from Alden, Minn., who's the president of the Minnesota Association of Soil and Water Conservation Districts; and Mr. Homer Engelhorn from Carrington, who's the manager of the Garrison Conservancy District. Are all four of those people here? Come on up. Despite our requests, which is a very normal request for Senate hearings, I'm reminded by staff that we get printed testimony of all the witnesses in advance, that we only have about half of the testimony of the witnesses, so if anybody has not handed in copies of their testimony, it would be helpful to us to have them.

Mr. OUTEN.[1] Are they any others in the audience from panels that are planning to come up later?

Senator DURENBERGER. All right. I guess we start with Dr. Dahlberg.

STATEMENT OF DR. DUANE DAHLBERG, BOARD MEMBER, MINNESOTA POLLUTION CONTROL AGENCY

Dr. DAHLBERG. Thank you, Senator Durenberger and Senator Burdick, for the opportunity of being here. My name is Duane Dahlberg and I am representing the Minnesota Pollution Control Agency today as a member of the MPCA Board. Very briefly for those of you who do not know much about this MPCA, it is a State agency which is charged with the carrying out of the pollution control laws in the State of Minnesota. And we are different from other State agencies in that MPCA is headed by a nine-member citizens board which has complete policymaking authority. We have a staff of about 300 people led by an executive director, and it is divided into three divisions: water quality, air quality, and hazardous wastes. And I have been a member of the board for about a year and a half, and I'm also associate professor of physics here at Concordia College in Moorhead.

The agency is very pleased to have the opportunity to comment on the proposed legislation today inasmuch as it recognizes the importance of nonpoint source pollution control in protecting the water resources of this State.

Nonpoint source pollution management in Minnesota is critical to the people of Minnesota, but it goes beyond that. It's critical to other States in the union as well as Canada. Hydrologically Minnesota is at the top of the hill, and so the water that falls on Minnesota, it genally flows out of Minnesota and so it affects other parts of the country all the way from Minnesota to the east coast, to the gulf coast and into Canada. Therefore, controlling water quality in Minnesota is very important.

Minnesota has 218,000 miles of streams and more than 1 million acres of wetland and over 12,000 lakes. The economy, lifestyle, and quality of life in Minnesota are inextricably tied to condition of these water resources. And an effective nonpoint source management program is essential to the maintaining and improving of our water resources.

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[1] Ronald B. Outen, professional staff member, Committee on Environment and Public Works.

All regions of Minnesota are affected by nonpoint sources and have the potential of significantly degrading the water used for human consumption, agricultural, industrial processing, and recreation. In northern and northeastern Minnesota is the nonpoint source pollution caused by environmentally unsuitable development and acid rain which affects the lakes. In the highly agricultural areas of western and southern Minnesota agricultural practices have the potential to degrade the quality of the valuable ground and surface water resources. In the Twin Cities metropolitan area urban runoff pollutes lakes, streams, and ground water. In the area of southeastern Minnesota the runoff from agricultural and urban areas are readily able to affect both surface and ground water.

Water Pollution Control has historically focused on municipal and industrial waste water point sources because they're easier to control and to treat. MPCA and local units of government with financial administrative assistance from the Federal Government under the Clean Water Act have been quite effective in addressing point source pollution. At present nearly 90 percent of the point source in Minnesota complies with secondary treatment required.

But in spite of the successful point source management efforts, however, a significant part of Minnesota's water resources continue to degrade in quality. Some streams are clogged with sediments; the lakes are rapidly becoming filthy; and some sources of ground water are becoming unsuitable for drinking.

Nonpoint source locations are probably the primary source of these continued water quality problems. Nationally, more than half of many pollutants originate from nonpoint sources. In Minnesota we have observed the same. For example, an MPCA study indicates that nonpoint source can have a significant impact on oxygen levels, especially in rivers. Preliminary modeling also indicates that most of the phosphorous delivered to State waters come from nonpoint sources. A significant portion of sediments, toxic metals, and pesticides also come from nonpoint sources. For these reasons, it seems unwise to neglect nonpoint source pollution control if we are to have and maintain clean water in Minnesota.

As you know, the concept of nonpoint source pollution control is not new. Since the mid-1970's, MPCA has taken the role of the leading agency in Minnesota in water quality and management planning, under Section 208 of the Clean Water Act. This effort involves extensive nonpoint source pollution research and statewide public discussion with contributions by people with various backgrounds and interests. In 1980 the work resulted in a 208 plan which recommended several statewide policies and programs to address nonpoint pollution problems.

The 208 plan identified 11 major activities which caused nonpoint pollution. These activities include construction, roadside erosion, highway deicing, cropland, feedlots, pesticides, forestry, mining, urban runoff, residual waste, and hydrologic modifications. For each activity, the plan assessed the water quality problems, delineated existing Federal and State and local management agencies and programs, identified best management practices, and recommended statewide policies and actions to address the remaining water quality problems.

The 208 plan recognized cropland, feedlots, urban runoff and construction as the more important nonpoint source pollution problems in Minnesota. Agricultural cropland is a significant source of sediments, nutrients, and pesticides. Waters from the major cropland areas of the State frequently receive water quality standards or criteria for sediment and nutrients. To address these problems, the plan recommended doubling the funding for existing State crop share programs, funding the rural clean water program, and strengthening education—and I emphasize education—research, monitoring, and technical assistance programs.

Lastly, it recommended encouraging the Federal Government to provide more incentives to the farmer to participate in conserving or conservation programs. Runoff from significant portions of the 90,000 feedlots in Minnesota contribute to the phosphorous, nitrogen and B.O.D. and other pathogens found in waters of the State. The 208 plan recommended continuation of the existing pollution control efforts with additional feedlot programs resources targeted to intensively address the most significant water quality problems. Urban runoff is a significant source of heavy metals, nutrients, chemicals, suspended solids, B.O.D., and people chloroform. The 208 plan recommended the study of the impact of the urban runoff and the establishment of urban management programs.

Construction sites runoff can contribute very concentrated levels of sediment in water. This can cause water quality violations in streams or lakes adjacent to construction sites. The 208 plan recommended enactment of statewide regular programs to control structural construction runoff. The 1980 plan was successful in identifying many aspects of nonpoint source pollution and in examining the numerous existing governmental efforts related to nonpoint pollution control. This plan, however, was completed at the same time that the State of Minnesota began experiencing severe financial difficulties.

Senator DURENBERGER. I hesitate to stop you at that point since I didn't announce at the beginning that we would like to keep a 7-minute limit on testimony, so if you can move along I would appreciate it.

Dr. DAHLBERG. All right. I'll finish up here. The implication of this is that the State of Minnesota has set up a program for the implementing of the 208 program which involves nonpoint source pollution, but at this point they do not have the funding to continue. They have done a number of things, and there's been some legislation in the State which will help the programs; that's in the report. If you have some questions, that can be discussed. The importance that we see here in this bill is the fact that in your amendment you have indicated that the State will have a lot of control over how things are done, and that's very important. We need all three, State, Federal, and local people involved if we're going to accomplish anything in these programs.

We thank you very much for the opportunity of presenting. And if there are some questions that you have with the people from the

Minnesota Pollution Control Agency like Robertson and David Richfield, you can—as well as myself—we can answer some questions. Thank you.

Senator DURENBERGER. Thank you very much, Dr. Dahlberg. Mr. Schwindt?

STATEMENT OF FRANCIS J. SCHWINDT, DIRECTOR, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL, NORTH DAKOTA STATE DEPARTMENT OF HEALTH

Mr. SCHWINDT. Thank you. Good afternoon, Mr. Chairman and members of the committee. My name is Francis Schwindt. I'm the director of the Division of Water Supply and Pollution Control with the North Dakota State Department of Health. I appreciate the opportunity to present this department's views on the control of nonpoint pollution in North Dakota.

The North Dakota statewide 208 water quality planning process identified nonpoint sources, especially agriculture, as a significant contributor to water quality problems within the State of North Dakota. The nonpoint source report prepared in March 1979 indicated there were nearly 3,000,000 acres of agricultural land in North Dakota where accelerated erosion is occurring. The plan estimated that it would cost $41 million per year to install and maintain best management practices.

Throughout the entire 208 water quality planning process, the Department of Health and those involved in the planning process maintained that the water quality management plan must be workable, affordable, and acceptable. To be workable, the nonpoint source program must be able to address the sources of pollution in such a manner that the landowners are willing to install and maintain the best management practices. In order to be acceptable, these best management practices must be able to be worked into a sound conservation plan which provides for long-term productivity and profit for the individual farm unit. The best management practices should not drastically interfere with or preclude the day to day operations of the farm or the landowner will not maintain the practice for a significant length of time. The best management practices must also be affordable to the landowner. The affordability of these practices can be increased through various cost-share programs and by providing technical assistance for the design and installation of the best management practices.

The North Dakota State Department of Health and local Soil Conservation Districts have actively implemented a nonregulatory nonpoint source plan. The plan identified 10 target areas located across the State and implementation has occurred in four of these target areas with implementation scheduled to begin in the fifth target area this fall. Implementation activities are also being conducted or have been completed in three watershelds not included in the original ten target areas.

The studies and monitoring efforts of the Department of Health as conducted in North Dakota indicate that we will never fully eliminate nonpoint sources of pollution. The naturally occurring rich soil of North Dakota which produces the abundant harvests of crops and livestock also provides sufficient nutrients to the runoff waters from adequately protected areas to cause eutrophication in our lakes and streams. However, we can make progress in controlling the amount of nutrients and sediment that result from agricultural practices. Our monitoring has indicated that grassed waterways and the elimination of barren soil can reduce the amount of nutrients and sediment that end up in our lakes and streams.

The North Dakota State Department of Health would have no objection to an amendment to the Clean Water Act requiring States to begin implementation, if they have not already done so, of a nonpoint source control program. The details of this program should be negotiated between the State and the Federal Environmental Protection Agency. This would allow individual States the flexibility to determine whether regulatory or nonregulatory programs are appropriate for the differenct types of nonpoint problems such as construction, agriculture, or urban runoff present in each particular State. The Federal overview could monitor the effectiveness of each particular program and recommend appropriate changes as the program is implemented.

This department would also request that all U.S. Department of Agriculture programs, especially the major agricultural programs, be compatible with the soil conservation program and the nonpoint source control program. The landowner who has developed and follows a sound conservation plan should receive a bonus for producing his crops on protected acreage. He should not be penalized for following a conservation plan as he has been under most major farm programs in the past. Currently, those landowners that do not follow a conservation plan can farm their class VI lands and then set those lands aside in nonproducing acreage and still keep their best land in production. This produces negative effects for the soil and water resources and the overall goals of the grain production control program.

In summary, the North Dakota State Department of Health supports the concept that a nonpoint source program must be developed and implemented in each state. The specifics for that nonpoint pollution program should be developed consistent with each individual State's needs. In addition, the major farm programs should not provide a disincentive to conservation farming practices.

Thank you for the opportunity to present this information.

Senator DURENBERGER. Thank you, and well done. Our next witness is Mr. Bryson.

STATEMENT OF WILLIAM H. BRYSON, PRESIDENT, MINNESOTA ASSOCIATION OF SOIL AND WATER CONSERVATION DISTRICTS

Mr. BRYSON. Mr. Chairman and members of the committee, my name is Bill Bryson. I am a farmer and the president of the Minnesota Association of Soil and Water Conservation Districts. I appreciate the opportunity to appear before you today and to share with you the concerns of Minnesota's 92 soil and water conservation districts and the 460 electric supervisors who comprise their governing boards.

Minnesota's soil and water conservation districts played an active role in the 208 planning process and support the current efforts to implement the nonpoint pollution elements of the State water quality plan. And I might add, that was one of the frustrations of my years as the supervisor of the soil and water conservation districts is the fact that we did devote considerable time and effort to 208 planning, nonpoint pollution planning, about 5 years ago and then found ourselves with very limited resources to carry out that plan. Also, it's frustrating to realize that July 1, 1983, has come and gone, and the waters that we proposed would have been safe enough to swim in and the fish safe to drink—or safe enough to swim in and the fish safe to eat is not realized. I hope that this will help to bring about these goals.

Since completion of Minnesota's plan several attempts have been made to implement the nonpoint plan and accelerate land treatment in general. These efforts have included the targeting of our States-funded cost-sharing program to critical areas; redirection of the soil and water conservation district planning efforts to emphasize critical treatment needs; the development of computer models to set land treatment priorities with individual watersheds; and the expansion of water quality monitoring to establish accurate baseline data.

I want to impress upon the committee that these efforts were not conducted by individual agencies in a haphazard fashion. Rather, they represent the close cooperation by Federal, State, and local agencies with the common goal of proper resource management. I emphasize this point because the proposed amendment to the Clean Water Act will demand such cooperation and we have established that it can work.

It is obvious that an effective mechanism exists for dealing with nonpoint pollution. The major limiting factor in utilizing this mechanism has been, and continues to be, limited funding. During a recent assessment of program needs conducted under the authority of the Resource Conservation Act, we established that $1.4 billion would be required to address soil erosion and adequately protect water quality in Minnesota alone. This figure includes land treatment costs and the technical assistance necessary to design and apply conservation practices. The total Federal, State, and local resources currently available to address this need amount to only $27 million. We can ill afford to continue our efforts at these levels. The costs appear high but must be compared to the value of the resource protected. In Minnesota, agriculture is responsible for in excess of $6 billion per year in economic activity. This fact alone should justify the investment but we must also consider the value of recreation and related tourism, wildlife habitat protection, and safe, usable water.

The Durenberger amendment provides an opportunity to improve the funding picture and accelerate conservation efforts without creating new program authorities and administrative structures. We believe the proposed funds can be effectively and efficiently channeled through our existing delivery system with a minimum of confusion and cost. Minor adjustments in program guidelines would focus these funds on the most critical nonpoint sources and control can be accomplished with conventional conservation practices in most instances.

These practices are already identified in the water quality management plan as best management practices. We can assure consistent design and application of these practices under the technical standards of the U.S. Department of Agriculture Soil Conservation Service which have been adopted by all soil and water conservation districts and are incorporated in appropriate State programs. Under this system, the staff of the Soil Conservation Service provide supervision of all technical activities within each soil and water conservation district. In addition, SCS provides the technical training of local conservation district employees. This type of Federal/local interaction greatly simplifies management of the technical aspects of the program and provides a more efficient use of available staff time.

In closing, Minnesota's soil and water conservation districts welcome the opportunity to accelerate nonpoint pollution control efforts, and we encourage Congress to take this positive action to protect our water resources.

Senator DURENBERGER. Thank you very much. Mr. Engelhorn?

STATEMENT OF HOMER M. ENGELHORN, MANAGER, GARRISON DIVERSION CONSERVANCY DISTRICT

Mr. ENGELHORN. Mr. Chairman, Senator Burdick, my name is Homer Engelhorn. I am the manager of the Garrison Diversion Conservancy District in North Dakota. We are the local sponsors of the Garrison diversion Federal irrigation project. We are strongly on the side of those who feel that control of nonpoint source water pollution should be left to the best judgment and implementation by the individual States involved.

The impacts of nonpoint source pollution vary widely from region to region and are viewed differently by various users. A Federal effort to regulate that diverse characteristic inherent in nonpoint source discharges through a uniform nationwide set of rules will unquestionably become repressive and may very well stifle the progress which has already been made by several States.

Irrigationists in North Dakota have realized for years that proper drainage methods have to be built into their water systems if their own lands are to remain productive and to maintain water quality in receiving streams.

All of the design work on the Garrison diversion unit is being carried out religiously with this in mind. Irrigation return flows have to be of a quality that will meet health standards as established by State and Federal requirements, not to mention our responsibility to Canada under the 1909 Boundary Waters Treaty. We are convinced, from scientific research already completed, that the return flows from our project will not be harmful to livestock, fish, and wildlife, and that it will also be suitable for domestic water uses. We have even more elaborate tests of this nature on the drawing board and these tests will be culminated when the Garrison project's 5,000-acre West Oakes Irrigation Test Area is ready for operation. Imposition of new Federal regulations and standards on this work certainly might impede the work we are doing here and result in a delay in our project, which has already been delayed for far too long.

We believe firmly that the Western States have demonstrated that they have the ability to resolve interstate water issues among themselves, and that they have established an excellent record to date in controlling nonpoint source pollution. Present Federal requirements already are on the books to sufficiently manage an effective nonpoint source pollution program, but the details certainly should be left to the States. Local people know what the problems are and how to correct them.

Federal funding to provide incentives for best management practices and effective water quality programs should be encouraged, but Federal authority and programs should continue to be flexible so that the needs of the individual States are not adversely impacted. Mandatory controls, as suggested in proposed legislation now being considered by Congress, are unwarrented in our opinion. Establishment of compliance deadlines and cross-compliance mandates appear to us as being at odds with the efforts to accomplish the goals of the Clean Water Act.

In general, we support the position of the Western States Water Council on this subject. The council has taken the stand that any mandated environmental protection agency intervention in the efforts of the Western States to address their own nonpoint source pollution problems would be highly disruptive of these efforts and would abridge the rights of state leadership in this area.

Thank you very much.

Senator DURENBERGER. Thank you very much. Let me start with a question of Mr. Schwindt. You said in your testimony to be realistic about all of this it might take the State of North Dakota until about the year 2000 to install best management practices and have them working effectively in North Dakota. Was that the application of best management practices to all of North Dakota or just to those 10 target areas that you mentioned in your testimony?

Mr. SCHWINDT. No, that would be to the entire State. The 10 target areas are taking on the average of about 3 to 4 years per target area, and these are generally small watershed areas that we're dealing with. So the year 2000 is for application across North Dakota.

Senator DURENBERGER. Let me ask all of you, if you will, to just briefly react to the concern for cooperation. Obviously the thrust of the amendment that I have put forward and the thrust of any effort on nonpoint source pollution has to be cooperation. It just is not something where somebody's going to impose a mandate and everybody's going to have to line up and salute. I wonder if each of you for your perspectives could briefly indicate how important cooperation, particularly between governmental agencies, is in achieving some of these objectives that we have in mind. Is it hard to achieve? Is every governmental agency what my constituents call it, some kind of a bureaucracy and nobody talks with anybody else? Is it hard for the State people to relate to the Federal Agencies? Is it hard for local people to relate to the State agencies? What has the experience been in terms of interagency and intergovernmental cooperation?

Mr. ENGELHORN. As far as our agency is concerned, we found some difficulty between the States, but I think there can be cooperation. I think that it is being done as far as our project is concerned, and—but I think it could be better. We have some difficulties with the federal bureaucracy at times, but generally speaking, I would say that over the long run we have had splendid cooperation.

Senator DURENBERGER. Anyone else?

Mr. SCHWINDT. We have real good cooperation in the individual project areas that we have undertaken programs in North Dakota, and generally, like the lake project we had about five different agencies that were involved in different cost-sharing programs, providing personnel, and those types of things. And it went really well as far as the State of North Dakota is concerned.

Senator DURENBERGER. Mr. Schwindt, you did make one good point I thought, among a number of good points. But the point you made near the end of your statement when you were talking about the compatibility of USDA programs with the nonpoint source control program; and I take it you have experienced some problems in that regard or you wouldn't have anticipated that could occur.

Mr. SCHWINDT. I guess we haven't found the problems per se in the individual target areas where we have been actively doing some implementation work, but we see it happening in land just driving down the road. You see some real steep hills being tilled that should have never been broken out of the native prairie. In talking to individual farmers you hear them say, "Well, we have to rip that out so we can put it back in later on when they have set aside acreage again."

Senator DURENBERGER. Bill?

Mr. BRYSON. Our soil and water district program is based in every facet on cooperation between the State agency, the Federal agency, and we as districts, a local entity of Government. We direct the Soil Conservation Service activity within our counties. We help to follow and direct the application of the ACP crop share funds from the ASC office. Again, ASCS provides technical assistance, and the whole basis of our operation is cooperation on all levels between the Soil and Water Conservation Districts, the State Soil and Water Conservation Board, and the Soil Conservation Service.

Senator DURENBERGER. Any additional comments?

Dr. DAHLBERG. Since I'm from the Minnesota side I have just a comment. In Minnesota sometimes in the things that I have been involved with I have found that the most difficulty is between local and State. From what I've seen in the State, agencies work very well together, and that is absolutely necessary for such a program. Not one thing can be accomplished unless that occurs. And it seems as though the State and the Federal programs and the cooperation seems to be very good, and there again it's very necessary. Without those types of cooperation the nonpoint source pollution problem can't be solved because it's so mammoth and it covers so huge an area.

Senator DURENBERGER. Senator Burdick, do you have a question?

Senator BURDICK. Yes, I agree it's mammoth. We're talking about this question and we seem to be just generalizing. Let me be specific and get an answer from you fellows, not that you haven't been answering properly. I'm a farmer out here at Kragness. I got a section of land. I use the best farming practices, I summer fallow, I do everything, I use the best seed, I put fertilizer on in the fall after I've taken the crop off. That next spring the Red River comes up and floods the whole area. In June we have a lot of rain and washes the stuff downstream. Now that's a practical situation. Well, my farming methods are perfect. What would you do about something like that?

Dr. Dahlberg. Kragness is in Minnesota?

Senator Burdick. Well, any other town in the valley here.

Dr. Dahlberg. I recognize this as a problem. One of the things that—one of the farming practices that is carried out which I don't know whether it can be changed or not—I'm not actively involved in farming today—but the flooding in the spring is almost always here. If there were less fertilizer put on the land in the fall so that your fertilizer would be put on the land after the flooding—from the agricultural standpoint I don't know what the problem would be, but certainly from the nonpoint source pollution problem it would be less of a problem because you have that much less that could dissolve in the water and run off with that water.

Senator Burdick. What about the spring and summer rains?

Dr. Dahlberg. The spring and summer rains are in the valley—it's just a problem there. It's a swamp. And whenever you're dealing with such an area you are not going to get rid of all of it.

Senator Burdick. Well, you're as puzzled as I am then.

Senator Durenberger. Anybody want to answer that question?

Mr. Bryson. I might ask the question: Can you as a farmer afford to operate that way when the nutrients—the fertilizer that you apply washes away it doesn't do you any good and probably does someone else some harm and there should be some—you can't avoid floods. And I farm an entirely different part of the State than this. I'm not really fully aware of your problems up here, but it seems that you could minimuze it by changing agricultural practices and avoid fall applicaiton of fertilizer in an area that is prone to frequent flooding.

Senator Burdick. Well, the spring application is subject to hazard, too.

Mr. Bryson. Yes, but not to the extent that fall application would be.

Senator Burdick. Well, you know the farmers up in this part of the country, they live with a great deal of hope.

Mr. Bryson. All farmers have to be optimistic.

Senator Burdick. I have another little quesiton here. We talked about the different areas and different States and different regions and that it shouldn't be an iron-clad progam for the whole country, and I agree with that. I think that there are strong arguments for State adminstration in these programs. But should the program retain a provision which authorized a downstream State to petition the adminstrator of EPA to require an upstream State to develop an implementation program compatible with a plan adopted by the downstream State? That could work either way, east and west, too. To what extent would you adjust between States? Does anybody want to answer that question?

Mr. Engelhorn. Well, Senator, as far as our project is concerned, we are concerned about that, but we re going to do the best possible job that we can. We have it written in our contract that the farmers shall carry out best management practices. And we have the authority and power to shut off the water if they don't. We would like to think that there would be flexibility and some cooperation in the States. I don't like requirements one State over the other State.

Senator BURDICK. Would this situation call for Federal oversight or Federal regualtion of some kind to take care of the between-State problem?

Mr. ENGELHORN. I would like to think that if we had problems between our States that the health department and our agencies could work it out with the other States.

Dr. DAHLBERG. Senator Burdick, since you mentioned it, I mention Minnesota is sort of the top of the hill. We don't get any polluted water from anyplace else, but we send polluted water elsewhere. In spite of that, I think it would be very important to have some sort of a legislation which would permit the downstream States to require the upstream States to have proper programs and—see, it doesn't amount to just the next State, but the Mississippi River flows all the way to the gulf. So it may be the States way down South that are receiving our pollutants. It's far more difficult to deal with a State that far away on an individual basis than a next door neighbor. And I think one almost needs something there.

Senator BURDICK. Your argument is for Federal rather that State legislation then?

Dr. DAHLBERG. Well, there certainly has to be some for some aspects of it, yes. But there has to be some sort of State rights as well.

Senator BURDICK. Yes.

Mr. SCHWINDT. I think that would—a provision such as that would certainly open the door for a good shouting match between various States. I think we have demonstrated in the past a cooperation between the States of Minnesota and North Dakota as far as controlling pollution point sources of pollution on the Red River. We've also worked with other States such as South Dakota bordering us and—on particular problems along the border. I don't think we need a Federal requirement that mandates that you go to EPA to solve the differences of opinion between two States. I think we can work among ourselves.

Senator BURDICK. Well, then can I assume that you're in favor of the State control of this problem?

Mr. SCHWINDT. Yes.

Senator BURDICK. That's all. Thank you.

Senator DURENBERGER. I just have one last question. Mr. Bryson, in your testimony you indicated that best management practices have already been identified in water quality management plans. I wonder if, in a general way perhaps, you might be able to describe what some of those best management practices are. Are they literally the best management practices that can be devised or are there factors such as feasibility or economics, some of those sorts of things taken into consideration in establishing what is best management practice in that area?

Mr. BRYSON. Well, I think this brings up the importance of the local soil and water districts' involvement and cooperation in arriving at these standards because they vary from area to area and even from individual farm or cooperator that you're dealing with. We use diversion, terraces, structures, whatever is most economically feasible, but each problem is dealt with between the local agencies, the local soil and water districts, their recommendations, their soil conservationists, to deal with the specific problem on a local basis. Is that answering anything? You say it might be a variety—number of things. In some instances it may be just common practices, whatever is the most economically feasible to arrive at the desired result.

Senator **Durenberger**. OK. My point is there, I guess: There is no 10 commandments of best management practices cast in stone. You just bring the stone along with you whether you're in the Red River Valley or whether you're out in the western part of North Dakota or anything like that. There's a variety of techniques, some of which are more applicable than others to certain kinds of situations.

Mr. **Schwindt**. A variety of techniques—what looked like the best practice 5 years ago—may no longer look like the best practice today, so it's a constant flux, a constant change toward what seems to be better or working better.

Senator **Durenberger**. Is there any question in anybody's mind, all of you that have dealt with this subject for a long time, that there are a lot of people out there practicing whatever best management practices might be and a lot of people practicing what might be worse management practices? There's a clear delineation there. One's practice is more detrimental to the water quality of the Red River Basin than the other. Is there any question that that is the result after 50 years of soil and water conservation and after all the tremendous things we have been doing in this country for over 50 years, those who are stewards of soil, we still can walk right out there and we can see a wide disparity in practices. Would you all agree with that? (Witnesses nod.)

Senator **Burdick**. Mr. Bryson, I want to ask one more question. You asked about agricultural practices. I met with a group of farmers 2 days ago up in the Devils Lake area, and we were discussing the merits and demerits of low till instead of deep plowing, and the arguments went pro and con and the saving of gasoline and all this and that, and one fellow popped up and said, "That's a good idea. We'll save money on gas but then we'll have to use more fertilizer and pesticide, too, because we haven't got the control of weeds that we had in deep plowing." Anything on that?

Mr. **Bryson**. It depends on the individual management basically. There's a wide disparity of management levels between individual farmers and methods of dealing with them, yes. In some instances it does require more pesticides. There are other problems, and management can overcome many of these problems but it depends upon the management skill of the individual land operator and how he carries them out.

Senator **Burdick**. OK.

Dr. **Dahlberg**. Senator Burdick, the Southwest Experiment Station in the State of Minnesota has done some work on low till and found both negative and positive aspects. In some cases they are not quite sure whether it's wise to proceed with it because of the insecticide problem.

Senator **Burdick**. That's more or less the argument for having the State control this rather than national?

Dr. **DAHLBERG**. In that aspect of it, yes.

Senator **DURENBERGER**. Thank you all very much. I appreciate your time and your testimony.

Our next panel is five people if they're all here. Mr. David Zentner from Duluth, representing the Isaak Walton League of America; Mr. Wayne Baron from Mandan, N. Dak., North Central regional executive, National Wildlife Federation; Mr. Leon Schefers from Moorhead, Minn., board member, Minnesota League of Women Voters; Ms. Peggy Ladner from Minneapolis, Minn., Clean Water Action Project; and Mr. Milo Hanson is also representing the Land Stewardship Project which he may, in his comments, partially describe for us. But our first witness will be Mr. Zentner.

STATEMENT OF DAVID ZENTNER, ISAAK WALTON LEAGUE

Mr. **ZENTNER**. Senator Durenberger, Senator Burdick, staff members, my name is Dave Zentner. I am here this afternoon to represent the Isaak Walton League, essentially to support what is known as the amendment to Senate File 431 known as the Durenberger amendment to the matter of nonpoint source pollution. I'd like to briefly touch on what I perceive and what the Isaaak Walton League perceives to be the seriousness and the magnitude of the problem, and I would like to respond to my understanding of points—specific points that we support generally in that amendment, and I would like before I do that, to thank you, Senator Durenberger, for the opportunity to appear and for the position that you've taken in leadership on a very serious national problem, known as nonpoint source pollution.

My years of activism and my experience in 5 years of service in the Minnesota Pollution Control Agency, and my years as a member of the Western Lake Superior Sanitary District Board tell me that the conclusions reached by other individuals that have testified before this and other committees, that this problem continues to be a significant, and in fact in many areas, the maximum contributor, of pollution to our waterways is correct. Indeed, as you have already pointed out in comments formerly made, Senator Durenberger, the previous efforts, certain exceptions notwithstanding, have basically been to plan and not to implement.

The so-called 208 program which has been referred to a number of times already today did a good job of defining the problem; and unfortunately, its primary impact has been one of paper movement, frustrating both planners, environmentalists, business and farming community members. It appeared in many areas to introduce too much government into the daily lives of business people and farming people.

Let me point out some facts that I believe should suggest again to the committee the magnitude of the problem. Nonpoint source pollution provides approximately one-half of all the conventional water pollution problems in America. In many cases, nonpoint source contributions from agriculture, urban areas, forestry, and mining and construction overwhelm the efforts made to date to eliminate the problems provided by the so-called point sources.

In other words, the millions of dollars—and we've spent $67 million on the point sources from 1973 to 1982, those dollars are being overwhelmed by the introduction of nonpoint sources. I refer to some specific statistics, but you've already gotten a lot of that so I will move to the next point that I would like to make.

And that is, the purpose in my testimony today is not to come into Moorhead to blame farmers or to blame urban planners or construction company people, or to get involved in a confrontation. The purpose of being here this afternoon is to indicate to you what I feel is the seriousness of the problem, my strong belief that we must act now, and my belief that we can act by cooperating between the sources of the nonpoint source pollution State and local government. I believe this is a modest step, but an intelligent one and a necessary one. And I am referring now to the amendment—the Durenberger-Chafee amendment. I must emphasize again that while the 208 program was conceptually sound, it failed among other reasons because it was not mandatory. And I point out that with few exceptions it largely has been an exasperating exercise in paper shuffling. But this amendment would build on the information that was so ably gathered in the 208 efforts and would not cause those millions of dollars that were spent in that program to be laid in waste.

To the specific characteristics of the Durenberger-Chafee amendment I would like to make the following comment as my understanding—at least as my understanding of what the intended measure now is: My understanding is that the implementation is to be set up by the State as has been repeatedly discussed by the first panel, with the cooperation of applicable local units and with the affected industries and farming communities. It's also my understanding that the goal is to achieve good average management practices that are readily achievable and that have been used by responsible landowners all along. Only those who have not yet acted responsibly and reasonably are going to have to change their management practices in order to comply with the State programs. I support a 4-year deadline because I believe it is adequate time and yet I think it's necessary that a specific timeframe be set in order for us to induce reasonable movement to these implementation plans and goals. The management practices must be achieved under the Durenberger amendment whether or not grant money is available, as my understanding, and that I support. In other words, this is not a grant program, that there will be money available for reimbursement of certain efforts, but the goals will stand whether money is provided or not and the goals requiring these management practices will be completed with or without Federal subsidation. Federal consistency is one of the points, as I understand it, being developed by the proposed language in this nonpoint source amendment. By that I mean that we're not going to subsidize farmers, for example, for crop payments who do not meet minimum standards—standards of—minimum standards of land management. I also believe in the role of Federal oversight. That is, it permits where a State has not been reasonable and prudent timeliness, implement a plan of nonpoint source control. Where the State has failed to act within a reasonable time, I support EPA being able to implement a plan in that State. And I would also like to have the committee consider citizen suits against States that are recalcitrant in carrying out the responsibilities under this amendment enactment.

I would like to share some observations that my son and I shared in June of 1983 while on the Mississippi River north of Iowa, an area where I grew up, where some of the best recreational and wildlife assets that we have in the upper midwest are being threatened enormously by nonpoint source pollution. In some places two-thirds to three-quarters of the waterfowl producing areas, fish production areas, are being overwhelmed by sediment, by silt, and contain pesticides which reflects the urban and agricultural society upstream generally. It seems to me that while it's going to cost money to attack the nonpoint source problem, that cost pales in comparison to the cost that we all pay in this society that permits unmitigated—largely unmitigated—the tremendous problem that the nonpoint source effort is. There's little more that I can add today other than the statistics that are contained in this statement that will go into the record that would not be repetitive, so I'll close with those comments, and again indicate my appreciation for the opportunity to be here.

Senator **Durenberger**. Thank you very much for being here. Wayne Baron?

STATEMENT OF WAYNE BARON, NORTH CENTRAL REGION EXECUTIVE, NATIONAL WILDLIFE FEDERATION

Mr. **Baron**. Good afternoon, Senator Durenberger and Senator Burdick. I am Wayne Baron and the National Wildlife Federation's North Central Regional Executive for the States of North Dakota, South Dakota, Minnesota, and Wisconsin.

The National Wildlife Federation is the world's largest conservation education organization with over 4 million members. I appreciate this opportunity to discuss the need to control nonpoint source pollution because of its impact on the waters of the north central States. Many of our members in this region are farmers, fishermen, and hunters with an intense interest in the quality of this Nation's waters. In North Dakota nonpoint sources are responsible for most surface water degradation. Water quality worsens during peak runoff periods such as the spring snow melt. Existing nonpoint control programs have been moderately successful in selected areas. They include lake restoration projects and educational research demonstration projects. The largest and most successful lake project has been undertaken at the Spiritwood Lake and the North Dakota State Department of Health is using funds from the North Dakota Game and Fish Interest Fund and agricultural conservation program to implement agricultural best management practices to control erosion. To date the best management practices installed include 22,000 feet of grassed waterways, 3,008 feet of terraces, tree planting, critical area, seedings, and stock ponds.

Future best management practices planned on this side include an animal waste system, desilting dam, crop residue management, and additional trees and waterways. Other lake restoration projects are underway at Brewer Lake, Sweet Bar Lake, and Crown Butte Dam. In addition, the North Dakota State University Extension

Service is under contract to promote low till farming by developing education programs and assisting with implementation.

South Dakota's agricultural nonpoint problem is exacerbated by widespread conversion of range land to poorly managed farmland which has resulted in severe erosion. Also drainage from active and inactive mines contributes to water quality degradation in water such as the Belle Fourche River and Whitefoot Creek. In addition to agricultural nonpoint pollution of surface waters, contamination of shallow ground water aquifers by nitrates from improperly applied fertilizer makes nonpoint pollution the major ground water quality problem in South Dakota. For example, in Gregory County every town in the county has at least one municipal well in which nitrate levels exceed EPA limits. South Dakota has developed a number of programs to control nonpoint pollution. Local conservation districts provide education, information, and technical assistance to landowners. In addition, 67 of 69 of the districts have adopted and implemented local soil erosion and sedimentation control ordinances which specify best management practices.

Use of best management practices is promoted by the districts and additionally is voluntary. However, if anyone complains about a pollution problem the landowner must develop and implement a district-approved plan within 6 months.

The State of Minnesota has over 12,000 lakes, the majority of which undergo eutrophication unless management of nonpoint sources is undertaken. Point sources only impact about 2 percent of these lakes. In addition, it has been estimated that 85 percent of the phosphorus overload in these lakes is from nonpoint pollution. The Minnesota River is an example of the water body which is seriously impacted by agricultural and urban runoff. According to the Minnesota Pollution Control Agency, "Nonpoint source inputs of nutrients and suspended solids are so substantial, no immediate improvement is projected in the river quality."

Minnesota has developed a voluntary State plan with a cost sharing proposed to control nonpoint pollution. However, funding is not adequate and that has been pointed out previously. Additional funding for the plan is being sought in the State legislature. Minnesota is also involved in a number of lake classification restoration projects and has conducted about a dozen projects under the clean lakes program.

In Wisconsin, the 1978 Wisconsin ~~fund~~ grant program was enacted. This program administered by the Department of Natural Resources provides cost share money for the cleanup of nonpoint pollution. Grants are made for projects at priority areas and implementation of these projects is carried out by county agencies. To date $21 million has been appropriated and 11 major projects are being implemented. Two more are being planned and an additional six will begin this fall. Also, 27 smaller scale projects are being conducted by the State, and 14 lakes are being studied under the clean lakes program in Wisconsin.

While in the North Central States—while the North Central States have some scattered programs with varying effectiveness, what is needed is a Federal program which places a high priority on addressing all of the States' waters where nonpoint pollution is a critical problem. For that reason, we support the Chaffee-Durenberger proposal. It will expand on what we have learned and will establish a nationwide program that relies on the States to develop management practices to be implemented in all of the areas where water is not meeting the national goal of water safe for fishing and swimming. We believe all five elements of this proposal, the State identification of problem water bodies, State and local identification of practical average management practices, implementation of practices 4 years after enactment, Federal consistency with State programs, and Federal implementation as a last resort are essential if the Nation's waters are to meet the 1983 goals. Each of the steps in the proposal is a reasonable expectation that builds on programs already in place. The only improvement we would urge the committee to make is to follow the example of North Dakota and South Dakota by making the nonpoint pollution control program subject to the citizens suit section of the Clean Water Act. In our State we have given citizens the right to identify problem nonpoint sources and required use of best management practices to solve the problem. Likewise, Congress should make the nonpoint program mandatory for States to develop and then give citizens the right to sue if a State does not develop a program.

Our Nation is spending billions of dollars correcting the problems created by nonpoint pollution, dredging harbors and rivers, fertilizing depleted topsoil, and stocking fish in dying lakes. I congratulate you, Senator Durenberger, for your foresight and leadership in crafting a solution to the problem. It is a good first step. On behalf of the Federation I urge the committee to adopt it.

Senator DURENBERGER. Thank you very much. Mr. Schefers?

STATEMENT OF LEON SCHEFERS, BOARD MEMBER, MINNESOTA LEAGUE OF WOMEN VOTERS

Mr. SCHEFERS. Senator Durenberger, members of the committee, my name is Leon Schefers and I appear before you on behalf of the Minnesota League of Women Voters as well as the Moorhead League of Women Voters.

It seems clear from the available research and investigation already completed by the Envorinmental Protection Agency that even though private industry as well as the Federal Government spend many millions of dollars each year combatting pollution, that nonpoint water pollution still appears as the unslain dragon.

The intensity of nonpoint pollution varies greatly from region to region. In this part of Minnesota where agricultural activity is dominant, issues relative to pesticides, herbicides, and fertilizers, and their indirect polluting effect through runoff into local streams, rivers, and aquifers are perhaps most obvious. According to a study conducted by the Soil Conservation Service, referred to by James Risser in the Des Moines Register, "Agricultural activities are causing pollution in two-thirds of the river basins in the United States."

The study indicated that despite regulartory action against chemicals, including many of the so-called persistent pesticides, the use of pesticides particularly herbicides is still rising. That's most important issue since you and I count on bountiful harvests for our food as well as international trade and assistance to other areas of our globe.

If municipal and industrial pollution activity is located and appropriate measures taken to resolve those problems, it seems likely that attention will then be directed toward agriculture and the related issues of soil erosion and water pollution.

Of additional consideration with respect to nonpoint sources of water pollution are the current practices in cities across the country of dealing with storm water and the toxic conglomeration of asbestos from brake linings, crankcase oil, grease, transmission fluid, antifreeze, salt, and lead that are carried to the nearest stream or river. A study in the Twin Cities of Minneapolis and St. Paul showed that annual inputs into the Mississippi River from urban runoff and combined sewer overflows were substantial: 62,000 tons of chemical oxygen demand, 54,000 tons of suspended solids, 5,000 tons of nitrogen, 500 tons of phosphorous, and 17 tons of lead. The effect of such deposits is perhaps visually obvious, and equally important aspect concerns the damage to aquatic life which is part of the eco-system on which you and I depend for our very lives.

In this northwestern quadrant of Minnesota the underground aquifers are of paramount concern. They are the life blood of our agricultural strength as well as the primary water supply for many urban areas. A tremendous amount of information is availale concerning these aquifers through State and local agencies and councils. It seems clear that such data ought to be included in the continuing research on the issue.

The Federal Government tries time and time again to address issues of pollution, including water pollution, acid rain, chemical, and solid waste pollution and hazardous waste pollution. Industry, on the other hand, the current administration viewpoint, industrial involvement to the contrary notwithstanding, continually appears reluctant to assume a proportional share of responsibility in the problem as well as the solution.

According to the information I have received concerning the Senators' plan under the Clean Water Act, it does not seem unrealistic to expect the following: A water quality standards report from each city and county of all surface and subsurface water in their respective areas; an inventory list, including the location, of all major and minor industries in each region; a description of the composition of soils and their location throughout the State; and the dominant forms of agricultural activity and the physical location throughout each region.

Assuming we already know a good deal about point source pollution, the above data should help clarify and narrow our focus on nonpoint sources of pollution. Because of the nature of nonpoint pollution, one region may be affected by activity occurring in adjoining region, and therefore some level of management would be required to oversee the commitment to addressing the issue. Such a program could be administered as a subspecies of preexisting State pollution control agencies, and should not require the creation of yet another bureaucratic layer, but rather should complement and be consistent with scientific, economic, and political efforts already expended.

In conclusion, therefore, I would praise Senator Durenberger for taking such a creative stand on the nonpoint water pollution and would further suggest the following: One, that any activity under the reauthorization period of the Clean Water Act be limited to water pollution problems which fail to meet water quality standards for reasons of nonpoint source pollution; two, that the major thrust for development a management plan lies with the State of Minnesota and contain a date certain for completion and/or compliance with the plan; three, if the State of Minnesota is unwilling or otherwise unable to develop such a plan, then and only then should the Federal Government intercede on behalf of the residents of Minnesota; four, those issues of water polution which involve more than one State—on those issues of water pollution which involve more than one State, appropriate interstate dialog commence immediately; and lastly, five, that the issue of Federal consistency of application become an integral part of implementation of the plan. Once the State has developed a management plan, the Federal Government would not support such activity that would violate the plan on a direct relationship basis. The concept of cross-compliance would not be part of the implementation of the plan. And, last, I was requested to read the following statement:

> The League of Women Voters of North Dakota concurs with the concerns expressed today by the Northern League and they will be addressing that issue from the North Dakota perspective to all of you.

Thank you.

Senator DURENBERGER. Thank you very much. Peggy, before I call on you, I was remined that at some point here I was going to clarify what the amendment actually provides relative to this whole subject of compliance, and the statement Mr. Schefers just made gets the closest to anything I have heard accurately characterizing what we intended. Just so there's no doubt on the part of any other witnesses I will read you part of my original statement on the subject which we are now implementing in language, and that is—we're talking about some terminology here unfortunately, cross-compliance, crossover sanctions, that sort of thing.

Now, the way I understand it crossover sanction is the denial of assistance under one program which would force compliance with a requirement in an entirely unrelated functional area. That was one of the crossover notions—one that was around before I got directly involved in this amendment. For example, denying sewage treatment and construction grants to places not meeting air quality standards is a crossover sanction. I think they're entirely inappropriate and intergovernmental mechanisms. We ought not deny a farmer an FHA loan guarantee on his house because he is not using good management practices in his fields. So what I'm about to propose is not a crossover sanction. I'm getting into the interpretation of compliance here.

Although crossover sanctions are not appropriate it is entirely reasonable to require the Federal agencies to respect State and local law and regulations. Federal agencies ought not to assist activities by individuals in businesses which are inconsistent with the laws, regulations, and plans of State and local governments in which those activities will occur. It will, I suppose, surprise some to learn that there are many Federal requirements on the books already requiring this kind of Federal respect for State and local planning. And I refer to Executive Order 12372 which was issued by President Reagan last year that requires all Federal agencies before making a grant or other form of assistance to submit the plans for that grant to the local and State planning agencies to make sure they're consistent.

I think that we should take a similar step in these amendments by including language which bars any Federal department or agency from providing assistance to any person or governmental entity to engage in any activity which is inconsistent with the plan developed by the States to control nonpoint source pollution. This would be an obstruction to the Federal agencies, not a power to stop assistance granted to the State. It would only affect assistance relationships, not permits and licenses. Assistance programs are all listed in the catalog of Federal domestic assistance and they include grants, loans, loan guarantees.

The Environmental Protection Agency might be instructed to play an advisory role in this process by indicating to the other Federal agencies what sorts of assisted activities might be affected by the State management plans and how Federal assistance decisions could be coordinated with State plans. But the responsibility to provide or not to provide the assistance in any particular case would be left up to each agency and its own policy process.

So, I just wanted to clarify that for the record and for the benefit of other witnesses at this point in the record.

Ms. Ladner, would you proceed with your statement?

STATEMENT OF PEGGY LADNER, MIDWEST DIRECTOR, CLEAN WATER ACTION PROJECT

Ms. **Ladner**. Senators, I am Peggy Ladner, midwest director for clean water action project. I thank you for the invitation to present our views on the problem of nonpoint source pollution and the program which Senator Durenberger has proposed for controlling this problem.

Clean action water project has been working on the issue of water quality for 12 years and assisted in the Clean Water Act of 1972. Every night we're out knocking on doors, talking to thousands of citizens about the problem of water quality and our work, and we find overwhelming support for a strong clean water program everywhere we go. As you know, we work with many citizen organizations, including those on this panel today. And I would like to say on behalf of the North Star Chapter of Sierra Club, Minnesota Conservation Federation, the Audubon Society, Minnesota Public Research Group, Minnesota Clean Air-Clean Water, Mississippi River Revival, Citizens for a Clean Mississippi, and St. Cloud Clear Water Council, we wish to thank Senator Durenberger for his initiative and hard work on the nonpoint source control program being considered here today. We feel it is a reasonable program and that it will receive widespread public support if passed into law.

As many have noted today, the nonpoint sources of pollution have been recognized for years and were taken into account when the 1972 Clean Water Act was written, and also the 1977 amendments to it, but neither law has required States to implement programs to control the problem.

Nonpoint source pollution adds sediment, nitrogen, fecal, and other coliform, toxic pollutants among other things, to our water. It's the major reason that Minnesota, along with 36 other States, cannot meet their water quality objectives. Nonpoint source pollution consists of runoff from croplands, urban areas, construction sites, mines, and silviculture activities. In addition to slowing the achievement of the water quality objectives, the loss of topsoil threatens the long-term health of the farm economy. As a final concern, most ground water pollution is from nonpoint sources.

Because Senator Durenberger chairs the Senate subcommittee with jurisdiction over the Safe Drinking Water Act, the link between ground water contamination and nonpoint sources deserves a brief discussion. The sources of ground water pollution are generally nonpoint sources such as septic systems, landfills, agricultural practices, industrial waste lagoons and impoundments, mining and accidental spills. The contaminants are many. Yet, many do not understand the interconnection between surface water and ground water. Furthermore, they don't appreciate how slowly ground water, and pollutants in it, moves and, therefore, how difficult it is to solve ground water contamination problems. We think it's entirely consistent with the role that Senator Durenberger plays in influencing both the Clean Water Act and the Safe Drinking Water Act that he has taken the lead in placing the Nation on a cleanup schedule for controlling nonpoint source pollution. We'd like to commend him for that.

A wealth of knowledge does exist as pointed out today about the problem as well as the technology available to diminish the problems, so I won't go into that area. I'd just like to point out that I think the information gathered in these programs such as 208 will be particularly valuable when developing control programs under the Durenberger proposal.

In addition, there have been—there is information on the types of management practices that have had success in a number of States. I would point out one example in Wisconsin. Vance Creek had been an excellent trout fishing stream for many years, a class I trout fishing stream, which downgraded to a class III stream because of runoff pollution. Through the State's efforts in stream bank control, animal waste control, and cropland controls, the creek has shown considerable improvement. And they expect to upgrade it to at least a class II, maybe class I, trout stream very soon.

Because of the seriousness of the nonpoint source contribution to the water pollution problem in the United States and the experience some States have had in addressing the problem, we do think there's some key ingredients necessary to a good nonpoint source control program.

First, the best programs are those which manage all activities which contribute pollutants to the water. Since Congress did set the objective of swimmable and fishable waters, I think that it's very important to keep that in mind. And controlling, for instance, only agricultural runoff will not achieve water quality objectives.

Second, the program should require participation and implementation by a certain date in all States. The biggest problem, next to money, that we have seen in tackling the problem is that the program is voluntary. Most States have simply studied the problems and made recommendations. Not enough progress has been made in the area. We would like to say that while regulatory approaches are often used in cities and with industries, and there's some familiarity there, that while we think that both the farm community and the cities and industrial community should have to comply, we would encourage that the first approach taken in farming areas be one of education, technical assistance, and peer pressure.

The third element is that we think that the program has a much greater chance for success if it is developed at the State and local levels. Reasons for this have already been mentioned.

Fourth, the program should set the achievement of best management practices as its long-term objective but begin with cleaning up the worst problems. Similar to the zero discharge goal put forth in the 1972 Clean Water Act, a higher standard as a long-term goal for the nonpoint source management program insures that no one will lose sight of the purpose of the program.

Finally, the Federal financial support and administrative oversight is critical to the success of a good program developed at the State level. Money and technical assistance will enable States to move quickly to implement control programs.

The proposal which Senator Durenberger has offered as an amendment to the Chafee bill is one that meets most of the elements pointed out here on a good nonpoint source control program. It is a reasonable approach and one that could enable many States to meet their water quality objectives. The following points in the proposal result in a strong yet workable program:

First, it's targeted. And so the Durenberger proposal requires States to look only at those water bodies which are not currently meeting water quality objectives because of nonpoint pollution problems. Second, the programs would be developed at State and local levels. Third, there's a compliance date for a mandatory program. We think that it's wise to depart from the past voluntary approach. We also think that since States are being asked to develop a program and see that identified polluters are in compliance within 48 months after enactment, this compliance period has a couple advantages. One is that it's providing enough time to get the program underway in the States and, second, it's not too long so that you can evaluate how the programs are working. Fourth, it does address the issue of Federal consistency. The proposal prevents the Federal Government from continuing programs and financial assistance policies that are inconsistent with the States' nonpoint source management programs. It seems reasonable to require that the Federal Government not interfere with State management programs.

Senator **Durenberger**. I think we're getting right close to the windup.

Ms. **Ladner**. OK. We would like to say that you don't use the term best management practices in your bill, and yet we do think that setting more ambitious long-term goals makes a lot of sense, even though you want to clean up the worst problems that you can.

I think just as a wrapup we would say, remembering the point someone made earlier, nonpoint source pollution has costs to the public when it is not controlled. And preventing nonpoint sources of pollutants and the resulting improvement of water quality can mean real benefits to the public. And there are many instances where pollution can increase cost. Things like the cost of treating water when there's more pollutants; and the cost of doing business in the State because of equipment wearing out faster. So, all of those things could be—some of those things at least could be reduced if we took control of nonpoint pollution. And so for these reasons, it makes sense to spend the money to control the problem and to reap the economic benefits as well as the esthetic benefits. And we do urge Congress to move ahead with the Durenberger proposal and get started on a nonpoint source control program. Thank you.

Senator DURENBERGER. Thank you very much. Our final witness is Mr. Milo Hanson. Are you busy writing out your statement there or writing a letter home?

Mr. HANSON. I always wait till the last minute.

Senator DURENBERGER. Nice to have you here.

STATEMENT OF MILO HANSON, BOARD MEMBER, LAND STEWARDSHIP PROJECT

Mr. HANSON. Senator Durenberger and Senator Burdick, and other members of the committee, I appreciate so much this opportunity to testify before your committee today about a subject that demands our attention. My name is Milo Hanson, a farmer from Dawson, Minn., representing the land stewardship project which is an ecumenical organization that presents programs in the churches throughout our State designed to help the public to become knowledgeable about the seriousness of soil erosion, water quality, the water that we are, through neglect and carelessness, losing and the farmland that we are losing through development. I am also the immediate past president of the Minnesota Association of Soil and Water Conservation Districts and am presently serving on the National Council of the National Association of Conservation Districts.

Our society has been very much production oriented without due consideration for our main resource base, which is our topsoil and water. Attitudes in thinking will have to be changed. In Leviticus 25:23, God reminds us "The land is mine; for you are strangers and sojourners with me." God expects this land to take care of many more generations of people.

We are today living in the me and my rights age which is nothing else than super self-centeredness and selfishness. Is it my right to take the living and recreation away from my grandchildren and others? If it is, we are indeed very sick people. I believe it is time that the people of this land realize that indifference and abuse have gone on much too long and a new day of respect and responsibility for oncoming generations must take precedence.

At the national convention of the National Association of Conservation Districts we passed the resolution on cross-compliance which is a resolution that came from Minnesota. I, of course, presented the resolution. I believe the time has come when the people realize we mean business and conservation is a must for everybody. In the soil and water conservation districts where a good educational program has been in operation, cross-compliance will make its entry with very little trouble. Furthermore, the distrtict supervisors passed a resolution at the State convention of Minnesota Association of soil and water conservation districts that favors districts to accept regulatory functions.

We have a long road ahead of us go get this job done, but I believe that the longest trip begins with the first step. Cross-compliance is a step in the right direction. I, personally, cannot see any sense in supporting an operation through the farm program that deliberateley abuses the soil.

The key here is keeping soil losses down to the accepted level in each county and soil and water conservation district. I, personally, have not plowed for 19 years and my crops have been getting better all the time and are second to none. Conservation tillage and conservation practices have done the job for me very well and I have saved lots of soil and water which means better crop production. I do receive a lot of free real estate from one neighbor from wind erosion who is a dyed in the wool plow farmer. My other neighbors have started to practice conservation tillage, so I don't get any free soil from them anymore.

I believe cross-compliance lends itself very well to the farm program. I am the first to admit that it will add to the workload of the district. But I believe it is well worth the additional funding that it will take to hire extra personnel in our districts to help the determination process and I am sure that conservation on the land will be speeded up considerably. In other words, we will do more than just talk and plan. There will be action.

Now, there are other concerns that I have addressed in my other statement that was sent to you. I have given you two statements. (See p. 640.)

Senator DURENBERGER. Which one do you want us to use? Both of them?

Mr. HANSON. Yes; they're compatible.

Senator DURENBERGER. All right.

Mr. HANSON. I'm very grateful that this committee has tackled a program that is not the most popular program you have ever seen, but a very important, serious program. Thank you for the privilege of testifying before you today.

Senator DURENBERGER. Thank you for the characterization of the program, too. Let me ask perhaps the first witness, Dave Zentner, one question. It's hard to tell where it is a mandatory or voluntary program because it has deadlines and things like that on it, but I think what you said is you know this is something we ought to give a chance to because if we don't give this thing a chance we're going to get very strong mandatory controls later. The way I see things going, the Government's getting out of our pocketbook and off our backs, and it would appear if you look superficially at where America's going, we're going against government and we're going against things that are mandatory. Why is it that you think, with regard to the quality of water in this country in particular, that if we don't use the approach suggested in this amendment over this period of time that the public in this country is going to demand stronger and mandated legislation on nonpoint source pollution?

Mr. ZENTNER. Mr. Chairman, I would respond in two ways. First of all, I think the current move of the country moving away from government may be very short-term movement. In fact, the private sector can't sustain responsible answers to resource utilization. The problems get big enough and the consequences serious enough and people will demand, as they have, a Federal support fund and Minnesota support fund, and Government responds when those of us in the private sector have failed to do so. We haven't been responsible in protecting the consumers against the more responsible aspects of industry. The second premise that I make is that in the times since I was 20 years old and began working for the Isaak Walton League as a volunteer to now, at 47, there has been an undiminished interest by Americans of all income classes, work classes, in cleaning up our waterways. And I have no doubt that the apparent attitude right now is really relatively short. I think people want something to happen.

Senator DURENBERGER. All right. Let me address another question to Ms. Ladner and Mr. Schefers. I think it was in your two statements that you addressed the aquifer pollution problem and I certainly agree that that's serious and the way I read your statement, you suggested that we can tackle that problem through the nonpoint source management program. I am wondering whether or not there would be a problem with this part of the program slowing down other parts of the program, such as erosion control if we volunteered that. Either one want to react to that?

Ms. LADNER. The point we're trying to make is that drinking water quality, since about half of the country gets its water from aquifers and underground sources it is affected through nonpoint source pollution, so controlling that problem through the Clean Water Act can only enhance the ability of the country to work toward a cleanup of contaminants in drinking water through other methods like—the same drinking water act so it can only enhance that. We, certainly, want to say that not having that would work counter to that.

Senator DURENBERGER. Thank you. That was my concern. Senator Burdick, any questions?

Senator BURDICK. Yes; I have one or two questions. The first one for Mr. Zentner. In your statement you say the goal is to achieve good average management practices that are readily achievable now that have been used by responsible landowners all along. Only those who have not acted responsibly and reasonably will have to change their practices in order to comply with the State programs. In North Dakota we have 37,000 farms. I don't know what the number is in Minnesota, but how would you proceed to determine who was acting responsibly and reasonably?

Mr. ZENTNER. Mr. Chairman, Senator Burdick, the amendment 431 suggests that the State implementation be done through the local agency Soil and Water Conservation Districts, county units who would ascertain the extent of the problem in their local area, the best reasonable responses to them, what works in that area, as was indicated this morning in the field trip that you went on indicating variance in soil types and farming methods, the crops grown. That's the way the identification of the extent of the problem and the perception of which management techniques would apply to those areas would work. At least that's my idea of the way the amendment is intended to be invoked at this time, sir.

Senator BURDICK. But you're lacking in details here. I'm a farmer out here and someone says I'm not farming properly. Do I have a hearing where I get to say my farming is all right? Who's the tribunal? Where's the tribunal?

Mr. ZENTNER. Mr. Chairman, Senator Burdick, the legislative function would be to that a determination. I'm again making some general presumptions that your farming methods are overcontributing to nonpoint source. That tribunal would have initially come from the local soil and water conservation district; and how that fits into your State plan—the bottom line is going to be the extent of pollution from your area and over a period of time how much the general improvement is.

Senator BURDICK. I'm wondering how the mechanics are going to work. Is the legislature going to set up a law and set up certain courts or what around the State to show whether or not I'm a good farmer or not?

Mr. ZENTNER. Mr. Burdick, we have been successful, I believe, and I think you would agree, under the clean water point source of this very legislation and using Federal oversight and saying, Duluth, you should plan and solve and use your own commonsense and your own experts. We have done that very much with point sources. It may be not totallly correct to tell you we can do it like that with nonpoint source, but that's the general drift. What we're saying is you decide on your farm, Mr. Burdick, how you solve your problems. The bottom line is not for me to tell you; it's the results that come about from how you run your farm.

Senator BURDICK. But you still haven't answered my question. How do you determine what farmers are acting unreasonably?

Mr. ZENTNER. It's impossible for me to sit here in Moorhead and know your land and techniques and I think reasonable people would work that out, don't you?

Senator BURDICK. No, sir, I have to have some guidelines. And I'm saying what is the tribunal in my case to determine whether or not I'm farming properly? How do you determine that?

Senator DURENBERGER. Well, if I may interrupt just a second. I really don't think that any of these witnesses that are here can really answer that question because it's going to vary from one part of the State to the other, depending on the kinds of land use involved, and the effect that it's having on water, and the type of crops that are involved, so many things. I would guess that that process will be much like the process that goes on right now, and as one of the witnesses said, some combination of technical assistance, education, peer pressure, but with a deadline of some kind. I guess the answer to this difference of approaches comes when the State of North Dakota presents a plan for approval to the EPA, and if in a general sense, it shows that it has identified the worst sources of the problem, there is a plan to average out the management practices. There is a plan to bring people below that up to that speed if the plan's going to get approved and work. If a farmer in an area is not making what the plan calls to be a commitment on his stewardship by this average practice, then the only penalties, I guess, implied in this are that some Federal agencies may not—or at least it is empowered in this——

Senator **Burdick**. But, Mr. Chairman, I want to know who makes that determination. That's all I'm asking.

Senator **Durenberger**. In each case, the State will make the determination.

Senator **Burdick**. The State who——

Senator **Durenberger**. The State of Minnesota. I don't know. Some legislation or——

Senator **Burdick**. Do I get a hearing to say whether I'm a good farmer or not?

Senator **Durenberger**. I'm afraid we can't answer that question. I'll rush to get you an answer to that question before we get back to the committee.

[Subsequent to the hearing, the following additional comments were received from Mr. Zentner:]

September 7, 1983

Senator Quentin N. Burdick
511 Senate Hart Office Building
2nd Street & Constitution Avenue N. E.
Washington, D. C. 20510

Dear Senator Burdick:

On my way back to Duluth from the August 24th Hearing in Moorehead on the Chafee-Durenberger Amendment to S 431 (Non-point Source Controls), I was thinkigg over your questions concerning how to handle a dispute between an individual land owner and plan implementation.

The first thing that came to mind was that the language involved (best management practices) may project to some people requirements equal to what we know as Best Available Technology, (current state of the art) on the point source side of our clean water legislation. That is to say, that a farmer would be confronted by someone from the federal government trying to impose the latest development because it represented best available technology, whether or not in fact it was practical on his farm given the lands, crops, hydrology, et cetera.

My concept of best management practices in the context of our support for this amendment is that it will require management practices that are current state of the art for that area, for those crops, for that land type, by the good farmers as a matter of routine right now. In other words, we would not be talking about putting a yoke or burden upon the farming community that is anything beyond what good land managers are now doing.

Nonetheless, you do raise an issue that may be significant in a few cases and it's something that we should attempt to respond to since it is an important point.

It would appear that in dealing with the relatively few cases that might possibly arise, that the states should resolve this problem in their implementation plans. The entire theme of the Amendment is to begin to solve the problem with minimum federal involvement. The intent clearly is to put maximum responsibility on states, on local units of government in cooperation with the farming and business community. In keeping with that, it would definitely appear to me that the Committee would not be interested in resolving the issue federally with language inserted in this legislation. I don't believe that is the intent of Senator Durenberger, and I would presume that you would also have the same view; that is, that the federal government ought not interpose itself between an individual land owner and a state who were in the middle of a dispute over what management practices should be.

However, you raised an issue that can be thorny to solve, and that could be difficult in a few isolated cases.

What appears to me to be reasonable, would be to have the Committee address it by including language that recognizes the potential for a dispute, and that directs the states to develop a process for dispute resolution in their implementation plan.

By doing this, the Congress will have responded to your concerns and made it clear to the states that this is a subject that needs to be solved at the local level, and that a process should be put in place to do that.

I do hope that we can work together to provide passage of an amendment that will protect this valuable natural resource with minimum burden on the business and agricultural community. The information we have is overwhelming that this is a significant problem, that the loss of this natural resource, and the cost and burden it places on other resource users can no longer be permitted to go unchecked.

Please advise if I can be of any further assistance.

Sincerely,

David F. Zentner, Past National President
Izaak Walton League of America, Inc.
824 Norwest Center
Duluth, Minnesota 55802

cc: Senator David Durenberger

Senator BURDICK. Just one more question. This is to Mr. Baron. You called for making the nonpoint pollution control subject a citizens provision of the Clean Water Act. I think this is a legal question, but I do have a little legal training and I guess that's why it sticks out. How would this work exactly? Should the citizens be allowed to sue the Administrator, sue the State, sue the farmer, who would he sue?

Senator BARON. Sue the State for not developing a program if a program is mandated. And, Senator Burdick, I will admit that I am not an attorney.

Senator BURDICK. Well, that's all right.

Mr. BARON. So if you have any other real difficult questions I'll not answer.

Senator BURDICK. I won't hold that against you. Your answer is you would sue the State?

Senator DURENBERGER. All right. Thank you all.

Mr. HANSON. Is it permissible for me to carry on?

Senator DURENBERGER. As long as you're responding to one of the questions that was proposed, and you want to elaborate, you go right ahead if you want to talk.

Mr. HANSON. I want to talk to Senator Burdick. There's a thing we call soil loss limits. There is provisions made certainly—and the Soil Conservation Service does have what they call soil loss limits—where my soil cannot erode beyond a certain limit, maybe 4 tons per acre, if we have a certain type of soil and that soil is not protected by conservation tillage and conservation practices and certain slope on that soil we know just about how much erosion is going to be on soil with a certain amount of rain. And, of course, then it depends upon where the rain comes down. But now I'm talking about SCS. I have to be careful here. I am not an SCS person. I'm only a district supervisor, but I have some knowledge of this.

The SCS certainly does have formulas in this respect and of course is one of the ways that we would be proceeding on this thing. There are formulas to determine soil loss. Anything above a soil loss limit of 4 tons—we think we can reproduce enough to keep up with about anything above that.

Senator **Burdick**. My friend, that wasn't my point. I'm all for your soil conservation, the eroding—who makes the determination? That's my only question.

Senator **Durenberger**. OK. Thank you all very much. Thank you for your testimony. We appreciate it.

I am now going to call the next four people up who were scheduled to be panels 3 and 4. We will have you all come up and testify now. The first person I'm going to call is a man representing the Minnesota League of Cities this year, so he had to come clear from International Falls—Bob Anderson, the mayor of International Falls representing the Minnesota League of Cities. Mr. Clarence Buerman came here from Cold Spring, Minn.; Mr. Vere Vollmers, Wheaton, Minn.; Mr. Wayne Edgerton, St. Paul, Minn. I have been given to understand that the Minnesota Farm Bureau will not be represented here today. I have seen a statement from them so check with them to see if they want that to be part of the record unless I am mistaken and somebody is here to represent the Farm Bureau. We have our final four witnesses. Welcome, all of you here today, and we will start as I indicated——

[Whereupon a discussion was had off the record.]

Senator **Durenberger**. You may proceed.

STATEMENT OF HON. ROBERT W. ANDERSON, MAYOR, INTERNATIONAL FALLS, MINN., REPRESENTING THE LEAGUE OF MINNESOTA CITIES

Mr. **Anderson**. Senator Durenberger and Senator Burdick, I am Robert Anderson, mayor of International Falls, and I represent the League of Minnesota Cities. I should like to make a few comments this afternoon about nonpoint source pollution on behalf of the cities of Minnesota.

We share in the desire and concern to protect the public health and public water supply within the boundaries of this State and whatever we may do in preventing such pollution.

We find ourselves in a similar stance as that of Senator Durenberger in his statement to the subcommittee on June 22 of this year in Washington when he stated he was "a bit resistant to some of these notions" that have been proposed as amendments to the Clean Water Act.

We certainly agree that the best management concept does not lend itself to really telling those affected how or what practices would be used, nor how much cost would be associated with them.

This leaves the subdivisions of government, business, industry, and individuals at the altar of interpretation upon which the Minnesota Pollution Control Agency worships. While we might support some of the practices the full effect of them and the ramifications they carry would not be known until they were interpreted by the State agency.

We, the cities of Minnesota, would like the opportunity to be part of the writing of a plan, the setting up of categories and subcategories of activity, and the expected level of management practices with the State.

The municipalities want to join with others in guarding against any unnecessary expenditures being required to be made where little, if any, environmental quality benefit would occur. We feel strongly that any such legislation that requires rules or regulations be done so by public input through hearings with local government playing a key role.

We can recite a long litany of such happenings in the past called mandated programs by both the State and Federal governments. We have found all too often that departments and agencies have been swinging at shadows when no need was ever established for such rules or regulations. Again, we welcome the opportunity to be a part of composing such items and would thank Senator Durenberger for bringing this to the attention of the subcommittee.

We find the timeframe of 48 months as being most reasonable and would give the State and local units of government the time needed to complete drafting a plan and begin implementation.

The cities of the State agree with Senator Durenberger that they find the possible imposition of cross-compliance sanctions as totally unacceptable and unnecessary. Such a proposal smacks of big brother tactics to get the individual or govenmental entity to knuckle under.

Even the Senator's proposal of barring any Federal department or agency from providing assistance to any person or subdivision of government in any activity which is inconsistent with the plans developed by the State to control nonpoint source pollution may go too far, depending on how State and Federal agencies interpret the language.

Eligibility for grants, loans, and loan guarantees should not be withheld until a governmental body complies with the State plan. Here again the length and breadth of such an impact on cities cannot be measured until it occurs.

That nonpoint source pollution poses a serious problem for the lakes and streams of Minnesota and other States is undeniable, but it hardly seems reasonable that a community's eligibility for a grant or loan in an entirely unrelated area should be removed or suspended is not at all acceptable.

Communities may spend years developing plans and waiting patiently on priority lists for the opportunity to improve the lot of its citizens only to have something discovered in a totally unrelated area that is causing a problem and which could wipe out their receiving such assistance. It is our firm belief that such a proposal hurts the cause of trying to eliminate problem areas. It breaks down the teamwork concept that is needed between all levels of government to solve the problems of our times. It is with these views that we come before you today, Senators.

In summary, the municipalities of this great State pledge our support to protect the environment we have been entrusted with and do want to be a part of drafting any guidelines that would be used to manage nonpoint source pollution within the timeframe outlined in the amendment.

We again adamantly oppose the use of assistance programs as hostages to compel compliance with the amendments. We thank you for the opportunity to be a part of this hearing and for allowing input into shaping the legislation that affects our cities and our lives. Thank you.

Senator DURENBERGER. Thank you very much. Mr. Buerman?

STATEMENT OF CLARENCE BUERMAN, VICE PRESIDENT, NATIONAL HOMEBUILDERS ASSOCIATION

Mr. BUERMAN. Senator Durenberger, Snator Burdick, members of the panel, we do not make Billy Beer at Cold Springs anymore. We have given that up 2 years agc.

My name is Clarence Buerman. I am a homebuilder and land developer from Cold Springs, Minn. I am testifying today on behalf of the Minnesota Builders Association. Our members include land developers and homebuilders whose businesses would be affected by enactment of a nonpoint source pollution control program.

We have substantial experience with nonpoint source management practices on construction sites and on finished development sites. Our experience has shown us that management practices must be site specific to do the job right at the least cost. Whatever we spend on management practices we must add to the cost of our houses which in turn is paid for by the home buyers of Minnesota. It is essential that decisions on management practices for nonpoint source controls be made by the private sector in consultation with local governments. We have very serious concerns about the nonpoint source proposal made by Senator Durenberger. For us it is a question of the proper role of the various levels of government. We do not want to expand the Federal bureaucracy. We do not want Federal agencies intruding into decisions that can best be made at the community level.

No one denies that there is a pollution problem. The Federal Government can address that problem best by setting the context for State and local governments along with the private sector to reduce nonpoint source pollution. The Federal Government can reasonably ask the State and local governments to draw up plans and programs to reduce nonpoint source pollution. It is also reasonable for the Federal Government to ask the State and local governments to address the entire problem. Every activity that adds to nonpoint source pollution should be addressed appropriately. we builders do not want to be asked to carry out cleanup measures while farmers are excused from acting. In that case our trouble and expense will be futile because of the volume of nonpoint source pollution coming from farms.

It would be appropriate for the Federal Government to certify that a State has written a program. Here we differ from the Durenberger proposal. We do not believe that the U.S. Environmental Protection Agency [EPA] should approve a State program if that means that EPA will judge the merits of the State program. The State and not the EPA should judge what is appropriate to do. EPA should only have authority to certify that the State has written a program and that the program addresses the entire problem in that State. For example, if the State decides that a voluntary compliance program is appropriate for a particular activity, then EPA should not be able to substitute its judgment and require the State to replace its voluntary compliance program with a strict regulatory program.

We also oppose the provision in the Durenberger proposal that says that EPA can intervene and both write and administer a program for a State that does not write its own. We do not approve of State inaction, but EPA is not staffed to supplant the State in this matter. Negotiation with the State should lead to action.

We recommend a positive program of incentives and not a negative program filled with regulatory requirements and sanctions. Much can be accomplished with incentives. Educational work, technical assistance, and voluntary compliance programs fostered through trade groups and farm organizations can reduce nonpoint source runoff. For instance, for a relatively small amount of money, the State could hire a person to work out of the offices of the Minnesota Builders Association. The person could conduct educational programs and go on building sites to give builders technical advice on the best ways to control runoff. Since the person would be working under the auspices of the builders association, our members would readily cooperate.

The Durenberger proposal contains another troublesome provision. It calls for Federal agencies to see to it that their actions are consistent with the State nonpoint source programs. We favor Federal coordination with State and local governments, but we fear that this provision will mire us in redtape and have Federal officials second guessing builders on compliance with State programs. If a State were to require a builder to write an erosion control program for his construction site prior to obtaining a building permit you can be assured that he will do so. If the builder is constructing an FHA subdivision, why should he then have to prove to FHA that he has done an erosion control plan? It is pure duplication.

I suggest that the State identify Federal programs that it views as being consistent and inconsistent with its program. The State could then negotiate with the latter to get them to conduct their actions consistently with the State program.

Federal dollars concern us as much as the Federal role in the proposal. The proposal calls for the Federal Government to spend $150 million yearly to carry out this program. Why do we keep adding more and more Federal programs when the Federal Government is already overspending its budget badly? The Federal deficit and high interest rate that it partly causes are a real threat to the health of the homebuilding industry. As such, they threaten the economy of Minnesota. Our Sentators should be cutting the budget, not expanding it.

Nonpoint source pollution in Minnesota can be reduced by Minnesotans doing it our own way. We do not need orders from Washington. Senators, I appreciate you giving me the time to be here.

Senator DURENBERGER. Thank you very much, Mr. Buerman. Mr. Vollmers?

STATEMENT OF VERE VOLLMERS, VICE PRESIDENT, MINNESOTA FARMERS UNION

Mr. VOLLMERS. Senator Durenberger, Senator Burdick, members of the committee, I am Vere Vollmers, vice president of the Minnesota Farmers Union. I farm near Wheaton, Minn., in Traverse County near where the Minnesota, North Dakota, and South Dakota borders meet.

On behalf of the Minnesota Farmers Union's 24,000 farm families, I would like to express my appreciation for the opportunity to appear before you at today's field hearing. The problems associated with nonpoint source water pollution are of longstanding concern to our members, particularly the young family farmers who will be in the business producing food for future generations of Americans. We believe that a systematic plan to remove or reduce this type of pollution requires the efforts and support of all Americans.

Clear definitions are necessary in order to appreciate the scope and causes of nonpoint source water pollution. In relating such a definition to agriculture, we must take into account wind erosion of soil as well as erosion caused by water runoff. I can attest to the fact that much of the erosion in my area of the State is caused by wind which fills the ditches along our rural roads and may eventually wind up in waterways. The net effect of soil erosion, whether caused by runoff or wind, is not only water pollution but also a reduction in the productivity of agricultural lands.

Clear goals in the overall thrust of the Clean Water Act are also desirable. The proposed amendment to the act must be tied to an overall goal, such as to reduce nonpoint source water pollution in the United States by 10 percent over 10 years. Without such an overall national goal, how can we measure the effectiveness of individual programs or funds expended?

As we move forward to set specific objectives in the various States to meet this national goal, we think that it is appropriate to analyze the extent of the nonpoint source water pollution which can be traced to existing factors in the agricultural, forestry, mining, manufacturing, and other sectors and then identify those management practices which can alleviate pollution problems caused by such sources.

From agriculture's perspective, much work in this area has already been done which can be expanded upon. The U.S. Soil Conservation Service, Minnesota State Soil and Water Conservation Board, ASCS, local soil and water conservation districts, resource conservation and development districts, and the Minnesota Pollution Control Agency are among those agencies already working to identify and reduce soil erosion and the water quality problems which it may contribute to.

Along with clear overall goals and specific objectives to reduce water pollution caused by nonpoint sources, we need clear and consistent governmental policies. To insure such consistency, Federal support and oversight is essential.

In agriculture, cross-compliance in farm programs can help provide such clarity and consistency. Minnesota Farmers Union has long supported efforts by the Federal Government to require cross-compliance in order for farmers to take advantage of the benefits of Federal Government to require cross-compliance in order for farmers to take advantage of the benefits of Federal farm programs. For example, we support the concept of requiring farmers to participate in Federal soil consideration efforts in return for receiving the benefits of regular farm loan and support programs. This philosophy, we believe, evokes a sense of responsibility on the recipient of the support, while helping the Government more judiciously spend tax dollars.

We do not see these requirements being an unreasonable burden on those receiving Government benefits, especially if Federal and State cost share funds are available for aiding a farmer to correct existing farm management practices to control soil erosion causing water pollution. As long as Federal funds are available, it is reasonable that Federal lawmakers should tie the availability of program benefits to program results.

In the case of Federal price support and conservation programs, the two areas are at least indirectly related and appropriate to be tied together in participation. As an example of the abuse of existing program benefits and the need for coordinating participation in Federal farm programs to provide consistency in policy goals, I can cite instances where windbreaks and other conservation practices financed by Federal soil conservation dollars were plowed under by farmers receiving Federal dollars through price supports and/or real estate and operating loans.

It we don't tie related Federal farm programs together, we may not be able to meet our goals and will waste taxpayer dollars.

I would remind you that any cross-compliance would be strictly voluntary. A farmer wishing to face the marketplace or the consequences of bad management practices can and could continue to do so.

Senator Durenberger, on page 28 of your draft proposal, section G, you provide a fine illustration of cross-compliance. We commend this portion of the proposal and fully support its passage.

Federal oversight and support is also necessary with respect to overall funding and administration. On the issue of matching grants, I remind you that Minnesota has provided additional funding for soil conservation and pollution cleanup while some of the other States lag far behind.

Any matching grant program should: (1) Recognize the difficulties State governments have in handling difficult economic times; (2) allow States that have increased pollution control and soil conservation funding in recent years credit for these increases in meeting matching requirements; and (3) not overlook the fact that water pollution remains a national issue that needs constant direction and attention from the Federal Government.

Minnesota shares major water boundaries with North Dakota and Wisconsin and lesser water boundaries with South Dakota and Iowa. This fact alone points to the need need for overall Federal goals and coordination, for many water pollution problems are interstate in nature. Federal coordination of State implementation plans, therefore, must meet all interstate nonpoint water pollution matters, and not simply upstream/downstream relationships.

Recognizing the urgency of action in some pollution areas, the targeting of money to highest need locations and to reduce the activities of the worst individual landowner and business offenders is important. At the same time, we must not begin to ignore the needs of lower priority areas or face the payment of stiff consequences in later years.

Finally, we think that the proposed 4-year deadline for implementation of nonpoint source management practices and measures is reasonable, especially when combined with the provision allowing temporary variances to those facing difficult economic circumstances, as many farmers are at present.

Thank you for the opportunity to appear before you.

Senator **Durenberger**. Thank you for being here. Wayne?

STATEMENT OF WAYNE EDGERTON, MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Mr. **Edgerton**. Mr. Chairman and members of the committee, my name is Wayne Edgerton. I am governmental units liaison with the Minnesota Department of Natural Resources, Division of Waters. I would like to take a few moments to express the general support of the Minnesota Department of Natural Resources for many of the concepts within your proposed amendments to the Clean Water Act.

The Department of Natural Resources has recognized for many years the serious problems nonpoint source pollution causes to the natural resources of our State. As you may know, the department has taken a number of steps to address at least a portion of the nonpoint pollution problems. Some of our efforts include involvement in ground water quality monitoring programs in the heavily irrigated portions of the State; acid rain research; the hiring of forestry specialists to address forest nonpoint problems; and the recent passage of a conservation tillage policy on DNR administered lands.

Although we feel these program steps are important, we know that these efforts simply are not enough. More emphasis and more dollars are needed at all levels of government and the private sector to realistically address our nonpoint source pollution problems.

Since the Clean Water Act became law we've witnessed millions of dollars being spent and much progress being made to reduce our point source pollution problems. However, many miles of our rivers and streams and far too many lakes still fail to meet water quality standards due to nonpoint source pollution.

We feel that the State has prepared reasonable plans addressing nonpoint source pollution and strongly agree with your thoughts on more implementation rather than more planning. It's time we start getting the management practices off the bookshelves and onto the ground, so to speak.

We are encouraged by your efforts to provide as much local and State control over the program as you are proposing. The deparment fully supports this concept and looks forward to positive interaction between all of the resource management agencies at the local, State, as well as Federal levels.

The Minnesota Soil and Water Conservation Board and its 92 soil and water conservation districts have demonstrated time and again that they are capable of meeting the soil and water conservation challenges when adequate support is provided.

The department feels it has a very good working relationship with the SWCD's as well as the other local, State, and Federal units of government involved in nonpoint source pollution control.

Although the Department of Natural Resources is not given direct responsibilities in your proposed amendments, we expect to be very much involved in a suppporting and advisory role. We have a vested interest in helping the nonpoint pollution control program work since its success will have many benefits to the natural resources we have been charged to manage and protect.

Some of the most obvious benefits will include a reduction in the amount of sediment and pesticides entering our surface waters and result in improved fish and wildlife habitat. In addition with the improved water quality, we should see increased water related recreational opportunities.

We sincerely hope this program does not result in excessive regulation which can hinder and bog down the implementation of an otherwise viable program. Instead we'd like to see an action-oriented program with resource enhancement and protection as its main goal.

Again, let me express the department's support for your efforts to address the Nation's very serious nonpoint pollution problems. If we all work together and approach this problem with a determined, optimistic attitude, we can make this program work.

Thank you, Mr. Chairman, for the opportunity to express the views of the Minnesota Department of Natural Resources before you and your distinguished committee.

Senator **Durenberger**. Thank you very much for your testimony. Let me thank all of the witnesses and let me say that I appreciate the fact that a lot of questions got raised here and concern both by my colleague from North Dakota and by several of the witnesses. Certainly we have in mind that we have to avoid the regulatory aspects the last witness pointed out and yet at every point in a system like this if you have deadlines, somebody has to ask the question, well, who's going to decide what are the consequences for the loser? One thing that would be helpful, and Mr. Hagaman who was to represent the Farm Bureau apparently in his testimony repeats something that the Farm Bureau said, that we ought to, instead of going along and getting the ball rolling on this, we ought to have 25 or 30 million dollars' worth of demonstration projects. Now although I am not a farmer, I have been close enough to the farms of my State over a lifetime starting in Stearns County, and it seems to me that in a lot of these areas, certainly in soil conservation areas, we have had a lot of demonstrations as we saw on the trip this morning. You know, you look from one neighbor to the next and there's plenty of demonstration out there. Is there some reason why somebody isn't taking advantage when he can see right next door?

Both Bob Anderson and Clarence Buerman might add some information to the record, in Minnesota, about what cities in Minnesota and what homebuilders are already doing for such things as storm water runoff. I happened to mention at the national hearing how my wife had been the chairperson of the Minneapolis Clean

Water Committee about 6 years ago. I know that a lot of progress is being made already, particularly in the area of storm water runoff within our communities, and certainly that bears directly on what the homebuilders are facing. So, if either or both of you can elaborate, where have we come in the last few years, and you can either do it now or if you want to do it in writing and give us some examples we can make those part of the record.

Mr. ANDERSON. I'll provide them in writing.

Senator DURENBERGER. Senator Burdick.

Senator BURDICK. I would just like to ask all of you one general question. For 25 years I have supported the soil conservation programs down there in Washington, and want to ask each one if you want to make a comment. Have we been doing any good? Should we be doing more. What's been the effect of our conservation legislation?

Senator BUERMAN. Senator, from the experience that I've had and of the States that have implemented programs, they've already showing that they are trying to and will solve the problems by themselves.

Senator BURDICK. How about the Farmer Union?

Mr. VOLLMERS. Mr. Chairman, Senator Burdick, I guess I would like to refer back to a question which you raised earlier. In your farm in Kragnes of thousands of acres or whatever the case may be and in regards to what technologies are available, I think that today we're looking at in regards to agriculture as I understand they're looking at technology such as putting fertilizer on when you put it on in the fall, putting it on with a digger, if you will, so you put that fertilizer down into the soil several inches, and studies have shown that when you dig it in or plow it down about 15 or 20 percent remains on the surface of the soil and that's the part which we're talking about ends up in heavy stream runoff in the Red River Valley. These types of practices and other technology need to be addressed and continue research on that. In addition, to answer your latest question about the progress in 25 years of agriculture conservation, I think that's demonstrated quite clearly by this year's PIK program. My point is that for those farmers who have been around, remember what it was like in the thirties when you could look at these people and this is true in my area, they took care of their PIK acres, they maintained them the way they were supposed to be. They planted cover crops for them to control the erosion, to control the wind erosion as well as the water erosion, and it's sad to say but it is true in our area that the problem with people was with the younger farmers, people who did not have experience and have no idea what could happen. And as a generalization, it's all too often the people who have not had a lot of experience. And we still haven't discovered a way for one generation to accumulate the knowledge of another generation.

Senator BURDICK. Anybody else have any comments?

Mr. EDGERTON. I would just like to say that I think without any doubt whatsoever that it's been worth it. We have made some progress. I guess we look at this as efforts at the local, State, and Federal level as a kind of fine tuning of those programs and trying to get some books out and maybe make some more progress. I would like to express in support of this statement just made about the education process, we really need to put some more emphasis on that and to bring the people up to date as to what can happen, especially the younger farmers who didn't live through those dust bowl days, as I didn't.

Senator BURDICK. There's a man from International Falls. Do you have any comment?

Mr. ANDERSON. Senator, the only thing we have up there is trees and they grow taller than the wheat and cornstalks I see down here. But really we don't have anything to offer with such programs.

Senator BURDICK. A good many years ago I played football for the University of Minnesota. Do you know a man by the name of Brian Oneg? How's his health?

Mr. ANDERSON. Very well, He's hurting a little bit from arthritis but he's doing very well.

Senator BURDICK. Give him my regards if you see him.

Mr. ANDERSON. Very well.

Senator DURENBERGER. Thank you for your testimony. The hearing is adjourned.

[Whereupon, the hearing was adjourned.]

[Statements submitted for the record follow:]

STATEMENT ON
NON-POINT SOURCE POLLUTION MANAGEMENT

BY
DR. DUANE DAHLBERG
MINNESOTA POLLUTION CONTROL AGENCY BOARD MEMBER

BEFORE
THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

AUGUST 24, 1983
MOORHEAD, MINNESOTA

THANK YOU. MY NAME IS DR. DUANE DAHLBERG. I'M HERE TODAY REPRESENTING THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA) AS A MEMBER OF THE AGENCY BOARD.

VERY BRIEFLY, FOR THOSE OF YOU WHO DO NOT KNOW MUCH ABOUT US, THE MPCA IS THE STATE AGENCY CHARGED WITH CARRYING OUT POLLUTION CONTROL LAWS IN MINNESOTA. WE'RE DIFFERENT FROM OTHER STATE AGENCIES IN THAT THE MPCA IS HEADED BY A NINE-MEMBER CITIZEN BOARD WHICH HAS COMPLETE POLICYMAKING AUTHORITY. WE HAVE A STAFF OF ABOUT 300, LED BY AN EXECUTIVE DIRECTOR AND DIVIDED INTO THREE DIVISIONS: WATER QUALITY, AIR QUALITY, AND SOLID & HAZARDOUS WASTE. I HAVE BEEN A MEMBER OF THE MPCA BOARD FOR THE PAST YEAR AND A HALF, AND AM ALSO A PROFESSOR AT CONCORDIA COLLEGE HERE IN MOORHEAD.

THE AGENCY IS PLEASED TO HAVE THE OPPORTUNITY TO COMMENT ON THE PROPOSED LEGISLATION TODAY INASMUCH AS IT RECOGNIZES THE IMPORTANCE OF NON-POINT SOURCE POLLUTION CONTROL TO PROTECTING OUR WATER RESOURCES.

NON-POINT SOURCE POLLUTION MANAGEMENT IN MINNESOTA IS CRITICAL TO THE PEOPLE OF MINNESOTA AND A NUMBER OF OTHER STATES AND CANADA. HYDROLOGICALLY MINNESOTA IS THE TOP OF THE HILL. WATER DOES NOT, IN GENERAL FLOW INTO THE STATE BUT FLOWS OUT TO OTHER AREAS OF THE COUNTRY AND TO CANADA. CONTROLLING THE QUALITY OF WATER IN MINNESOTA, THEREFORE, IS IMPORTANT FROM MINNESOTA, TO THE EAST COAST, TO THE GULF COAST, TO CANADA. FUTURE USE OF OUR WATERS FOR RECREATION, DRINKING WATER SUPPLY, INDUSTRIAL PROCESSES, AND AGRICULTURE HINGES ON SUCCESSFUL MANAGEMENT THROUGH BOTH POINT AND NON-POINT PROGRAMS.

MINNESOTA HAS 218,000 MILES OF STREAMS, MORE THAN ONE MILLION ACRES OF WETLANDS, AND OVER 12,000 LAKES. THE ECONOMY, LIFE STYLE, AND QUALITY OF LIFE IN MINNESOTA ARE INEXTRICABLY TIED TO THE CONDITION OF THESE WATER RESOURCES. AN EFFECTIVE NON-POINT SOURCE MANAGEMENT PROGRAM IS ESSENTIAL FOR MAINTAINING AND IMPROVING OUR WATER RESOURCES.

ALL REGIONS OF MINNESOTA ARE AFFECTED AND NON-POINT SOURCES HAVE THE POTENTIAL TO SIGNIFICANTLY DEGRADE WATER USED FOR HUMAN CONSUMPTION, AGRICULTURE, INDUSTRIAL PROCESSING, AND RECREATION. IN NORTHERN AND NORTHEASTERN MINNESOTA IT IS THE NON-POINT SOURCE POLLUTION CAUSED BY ENVIRONMENTALLY UNSUITABLE DEVELOPMENT AND ACID RAIN WHICH AFFECTS THE LAKES. IN THE HIGHLY AGRICULTURAL AREAS OF WESTERN AND SOUTHERN MINNESOTA AGRICULTURAL PRACTICES HAVE THE POTENTIAL TO DEGRADE THE QUALITY OF VALUABLE GROUND AND SURFACE WATER RESOURCES. IN THE TWIN CITIES METROPOLITAN AREA URBAN RUNOFF POLLUTES LAKES, STREAMS, AND GROUND WATER. IN THE KARST AREA OF SOUTHEASTERN MINNESOTA, RUNOFF FROM AGRICULTURAL AND URBAN AREAS ARE READILY ABLE TO AFFECT BOTH SURFACE AND GROUND WATERS.

WATER POLLUTION CONTROL HAS HISTORICALLY FOCUSED ON MUNICIPAL AND INDUSTRIAL WASTEWATER POINT SOURCES BECAUSE THEY ARE FAR EASIER TO CONTROL AND TREAT. THE MPCA AND LOCAL UNITS OF GOVERNMENT, WITH FINANCIAL AND ADMINISTRATIVE ASSISTANCE FROM THE

FEDERAL GOVERNMENT UNDER THE CLEAN WATER ACT, HAVE BEEN QUITE EFFECTIVE IN ADDRESSING POINT SOURCE POLLUTION. AT PRESENT NEARLY 90 PERCENT OF POINT SOURCES IN MINNESOTA COMPLY WITH SECONDARY TREATMENT REQUIREMENTS.

IN SPITE OF SUCCESSFUL POINT SOURCE MANAGEMENT EFFORTS, HOWEVER, A SIGNIFICANT PART OF MINNESOTA'S WATER RESOURCES CONTINUE TO DEGRADE IN QUALITY. SOME STREAMS ARE CLOGGING WITH SEDIMENTS, SOME LAKES ARE RAPIDLY BECOMING EUTROPHIC, AND SOME SOURCES OF GROUND WATER ARE BECOMING UNSUITABLE FOR DRINKING.

NON-POINT SOURCES OF POLLUTION ARE PROBABLY THE PRIMARY SOURCE OF THESE CONTINUED WATER QUALITY PROBLEMS. NATIONALLY, MORE THAN HALF OF MANY POLLUTANTS ORIGINATE FROM NON-POINT SOURCES. IN MINNESOTA WE HAVE OBSERVED THE SAME PATTERN. FOR EXAMPLE, AN MPCA STUDY INDICATES THAT NON-POINT SOURCES CAN HAVE A SIGNIFICANT IMPACT ON OXYGEN LEVELS ESPECAILLY IN RIVERS. PRELIMINARY MODELLING ALSO INDICATES THAT MOST OF THE PHOSPHORUS DELIVERED TO STATE WATERS COMES FROM NON-POINT SOURCES. A SIGNIFICANT PORTION OF SEDIMENTS, FECAL COLIFORM, TOXIC METALS, AND PESTICIDES ALSO COMES FROM NON-POINT SOURCES.

FOR THESE REASONS, IT SEEMS UNWISE TO NEGLECT NON-POINT SOURCE POLLUTION CONTROL IF WE ARE TO HAVE AND MAINTAIN CLEAN WATER BODIES IN MINNESOTA.

AS YOU KNOW, THE CONCEPT OF NON-POINT SOURCE POLLUTION CONTROL IS NOT NEW. SINCE THE MID 1970's THE MPCA HAS TAKEN THE ROLE OF LEAD AGENCY IN MINNESOTA WATER QUALITY MANAGEMENT

PLANNING UNDER SECTION 208 OF THE CLEAN WATER ACT. THIS EFFORT INVOLVED EXTENSIVE NON-POINT SOURCE POLLUTION RESEARCH AND STATEWIDE PUBLIC DISCUSSION WITH CONTRIBUTIONS BY PEOPLE WITH VARIOUS BACKGROUNDS AND INTERESTS. IN 1980 THE WORK RESULTED IN A 208 PLAN WHICH RECOMMENDED SEVERAL STATEWIDE POLICIES AND PROGRAMS TO ADDRESS NON-POINT POLLUTION PROBLEMS.

THE 208 PLAN IDENTIFIED 11 MAJOR ACTIVITIES WHICH CAUSED NON-POINT POLLUTION. THESE ACTIVITIES INCLUDE CONSTRUCTION, ROADSIDE EROSION, HIGHWAY DE-ICING, CROPLAND, FEEDLOTS, PESTICIDES, FORESTRY, MINING, URBAN RUNOFF, RESIDUAL WASTE, AND HYDROLOGIC MODIFICATIONS. FOR EACH ACTIVITY THE PLAN ASSESSED THE WATER QUALITY PROBLEMS, DELINEATED EXISTING FEDERAL, STATE, AND LOCAL MANAGEMENT AGENCIES AND PROGRAMS, IDENTIFIED BEST MANAGEMENT PRACTICES, AND RECOMMENDED STATEWIDE POLICIES AND ACTIONS TO ADDRESS REMAINING WATER QUALITY PROBLEMS.

THE 208 PLAN RECOGNIZED CROPLAND, FEEDLOTS, URBAN RUNOFF, AND CONSTRUCTION AS THE MORE IMPORTANT NON-POINT SOURCE POLLUTION PROBLEMS IN MINNESOTA. AGRICULTURAL CROPLAND IS A SIGNIFICANT SOURCE OF SEDIMENTS, NUTRIENTS, AND PESTICIDES. WATERS IN THE MAJOR CROPLAND AREAS OF THE STATE FREQUENTLY EXCEED WATER QUALITY STANDARDS OR CRITERIA FOR SEDIMENT AND NUTRIENTS. TO ADDRESS THESE PROBLEMS THE PLAN RECOMMENDED DOUBLING THE FUNDING FOR THE EXISTING STATE COST-SHARE PROGRAM, FUNDING THE RURAL CLEAN WATER PROGRAM, AND STRENGTHING EDUCATION, RESEARCH, MONITORING, AND TECHNICAL ASSISTANCE PROGRAMS. LASTLY, IT RECOMMENDED ENCOURAGING THE FEDERAL GOVERNMENT TO PROVIDE MORE INCENTIVES TO THE FARMER TO PARTICIPATE IN CONSERVATION PROGRAMS.

RUNOFF FROM A SIGNIFICANT PORTION OF THE 90,000 FEEDLOTS IN MINNESOTA CONTRIBUTES TO THE PHOSPHORUS, NITROGEN, BOD AND FECAL COLIFORM FOUND IN WATERS OF THE STATE. THE 208 PLAN RECOMMENDED CONTINUATION OF THE EXISTING POLLUTION CONTROL EFFORTS WITH ADDITIONAL FEEDLOT PROGRAM RESOURCES TARGETED TO INTENSIVELY ADDRESS THE MOST SIGNIFICANT WATER QUALITY PROBLEMS.

URBAN RUNOFF IS A SIGNIFICANT SOURCE OF HEAVY METALS, NUTRIENTS, PETROCHEMICALS, SUSPENDED SOLIDS, BOD, AND FECAL COLIFORM. THE 208 PLAN RECOMMENDED STUDY OF THE IMPACTS OF URBAN RUNOFF, AND THE ESTABLISHMENT OF URBAN MANAGEMENT PROGRAMS.

CONSTRUCTION SITE RUNOFF CAN CONTRIBUTE VERY CONCENTRATED LEVELS OF SEDIMENTS TO WATERS. THIS CAN CAUSE WATER QUALITY VIOLATIONS IN STREAM OR LAKES SEGMENTS ADJACENT TO CONSTRUCTION SITES. THE 208 PLAN RECOMMENDED ENACTMENT OF STATEWIDE REGULATORY PROGRAMS TO CONTROL CONSTRUCTION RUNOFF.

THE 1980 PLAN WAS SUCCESSFUL IN IDENTIFYING MANY ASPECTS OF NON-POINT SOURCE POLLUTION AND IN EXAMINING THE NUMEROUS EXISTING GOVERNMENTAL EFFORTS RELATED TO NON-POINT POLLUTION CONTROL.

THIS PLANNING, HOWEVER, WAS COMPLETED AT THE SAME TIME AS THE STATE OF MINNESOTA BEGAN TO EXPERIENCE SEVERE FINANCIAL DIFFICULTIES. AS A RESULT, FOR THE MOST PART, THE PLANS HAVE SIMPLY REMAINED PLANS. ACTUAL IMPLEMENTATION OF AN EFFECTIVE NON-POINT SOURCE PROGRAM HAS BEEN AWAITING THE CRITICAL ELEMENT OF FUNDING.

IMPORTANT STEPS, NEVERTHELESS, HAVE BEEN AND ARE BEING TAKEN TO LAY THE NECESSARY GROUNDWORK FOR THAT IMPLEMENTATION.

IN 1982 THE MINNESOTA LEGISLATURE PASSED TWO LAWS WHICH WILL POSITIVELY IMPACT NON-POINT SOURCE MANAGEMENT. FIRST, THE STATE AGRICULTURAL LAND PRESERVATION AND CONSERVATION POLICY ACT MANDATED THE IDENTIFICATION OF HIGH PRIORITY EROSION, SEDIMENTATION AND WATER QUALITY PROBLEMS, AND ALLOCATED 70 PERCENT OF AVAILABLE COST-SHARING FUNDS TO THOSE AREAS.

SECOND, THE METROPOLITAN SURFACE WATER MANAGEMENT ACT WAS ALSO ENACTED IN 1982. THIS ACT REQUIRES THE ESTABLISHMENT OF WATERSHED MANAGEMENT ORGANIZATIONS FOR ALL SECONDARY WATERSHEDS WITHIN THE SEVEN COUNTY METROPOLITAN AREA. WATERSHED MANAGEMENT ORGANIZATIONS ARE REQUIRED TO DEVELOP AND IMPLEMENT A PLAN TO MANAGE WATER QUANTITY AND WATER QUALITY PROBLEMS. PLANS ARE REQUIRED BY JANUARY 1, 1986.

ANOTHER SIGNIFICANT ACTION INVOLVES THE DEVELOPMENT OF MODELS WHICH ESTIMATE THE IMPACT OF LAND USE PRACTICES AND WATER POLLUTION DELIVERY. THE MODELS WERE DEVELOPED THROUGH THE JOINT EFFORTS OF THE MPCA, THE SOIL AND WATER CONSERVATION BOARD, AND THE UNITED STATES DEPARTMENT OF AGRICULTURE'S AGRICULTURAL RESEARCH SERVICE. THE MODELS WILL PROVIDE A TOOL TO IDENTIFY AND PRIORITIZE WATERSHEDS ACROSS THE STATE ACCORDING TO THE DEGREE OF POLLUTANT DELIVERY FROM ADJACENT LAND USE PRACTICES.

WE BELIEVE THAT THE CONSIDERABLE WORK ALREADY DONE BY THE POLLUTION CONTROL AGENCY AS WELL AS OTHERS IN MINNESOTA DOES PROVIDE THE STATE WITH THE FRAMEWORK TO ADDRESS NON-POINT POLLUTION CONTROL. AT PRESENT WE LACK ONLY ONE ESSENTIAL ELEMENT: ADEQUATE FUNDING. REALISTICALLY THE STATE OF MINNESOTA

SIMPLY DOES NOT HAVE THE FINANCIAL RESOURCES TO ADEQUATELY ADDRESS OUR NON-POINT SOURCE POLLUTION PROBLEMS.

WE BELIEVE THAT A SUCCESSFUL PROGRAM MUST INVOLVE A STRONG FEDERAL-STATE-LOCAL PARTNERSHIP. WE SUPPORT THE DURENBERGER AMENDMENT BECAUSE IT PROVIDES THE FLEXIBLE FEDERAL FINANCIAL AND ADMINISTRATIVE SUPPORT THAT IS NECESSARY IF WE ARE TO SOLVE NON-POINT PROBLEMS IN MINNESOTA. WE ARE CONFIDENT THAT A COOPERATIVE FEDERAL-STATE-LOCAL EFFORT CAN BE SUCCESSFUL IN PRESERVING OUR WATER QUALITY RESOURCES FOR FUTURE GENERATIONS.

IN SUMMARY, OUR PLANNING AND ADMINISTRATIVE FRAMEWORK IS IN PLACE, WE ARE READY TO IMPLEMENT AN EFFECTIVE NON-POINT SOURCE MANAGEMENT PROGRAM, AND WE BELIEVE THAT THIS LEGISLATION WILL MAKE SUCCESSFUL IMPLEMENTATION POSSIBLE.

THANK YOU FOR THIS OPPORTUNITY TO PRESENT THE MPCA'S POSITION ON NON-POINT SOURCE POLLUTION AND THE PROPOSED IMPLEMENTATION PROGRAM. WE HAVE ALREADY SUPPLIED SENATOR DURENBERGER WITH DETAILED COMMENTS ON THE SPECIFIC PROVISIONS OF THE PROPOSED AMENDMENT, AND WE WOULD BE HAPPY TO ANSWER ANY FURTHER QUESTIONS YOU MIGHT HAVE.

Testimony before the Committee on Environment & Public Works
United States Senate
Regarding Nonpoint Source Pollution

Presented By

Francis J. Schwindt, P.E.
North Dakota State Department of Health

August 24, 1983

Good afternoon, Mr. Chairman and members of the subcommittee. My name is Francis Schwindt. I am the Director of the Division of Water Supply and Pollution Control with the North Dakota State Department of Health. I appreciate the opportunity to present this Department's views on the control of nonpoint pollution in North Dakota.

The North Dakota Statewide 208 water quality planning process identified nonpoint sources, especially agriculture, as a significant contributor to water quality problems within the state of North Dakota. The nonpoint source report prepared in March 1979 indicated there were nearly three million acres of agricultural land in North Dakota where accelerated erosion is occurring. The plan estimated that it would cost $41 million per year to install and maintain best management practices.

Throughout the entire 208 water quality planning process, the Department of Health and those involved in the planning process maintained that the water quality management plan must be workable, affordable, and acceptable. These criteria were used in establishing the outline for the nonpoint source implementation program in North Dakota. To be workable, the nonpoint source program must be able to address the nonpoint sources of pollution in such a manner that the landowners are willing to install and maintain the best management practices. In order to be acceptable, these best management practices must be able to be worked into a sound conservation plan which provides for long-term productivity and profit for the individual farm unit. The best management practices should not drastically interfere with or preclude the day to day operations of the farm or the landowner will not maintain the practice for a significant length of time. The best management practices must also be affordable to the landowner. The affordability of these practices can be increased through various cost share programs and by providing technical assistance for the design and installation of the various best management practices.

Best management practices can be installed and maintained for an extended time period if a conservation and water quality ethic can be instilled in the landowner through a concentrated educational effort. A regulatory program can only work if there are sufficient numbers of regulatory personnel to routinely monitor the installation and maintenance of best management practices.

The state of North Dakota, through the Legislative Council, is currently reviewing existing state soil conservation laws and the model state soil conservation law as proposed by the Midwest Governor's Conference to determine how the model law could be adapted to meet the needs of North Dakota. The model law includes provisions for mandatory soil loss limits. The Council will report its findings and recommendations to the next legislative session.

The North Dakota State Department of Health and local soil conservation districts have actively implemented a nonregulatory nonpoint source plan. The plan identified ten target areas located across the state and implementation has occurred in four of these target areas with implementation scheduled to begin in the fifth target area this fall. Implementation activities are also being conducted or have been completed in three watersheds not included in the original ten target areas.

This Department has been involved in the implementation of an agricultural nonpoint source pollution control program in two particular watersheds. One wastershed is Spiritwood Lake located in Stutsman County approximately 20 miles northeast of Jamestown. The watershed is approximately 25 square miles in size and implementation has been ongoing for three years. To date, the following has been installed:

53 acres of grassed waterways
3 stock ponds
9 water developments for wildlife
9,860 feet of terraces
19 acres of critical area seeding
80 acres of water bank
12,824 acres of crop residue management
1,630 acres of stubble mulching
960 acres of protected fallow
153,950 feet of tree planting
820 acres of no-till farming
70 acres of wildlife tree planting
1 animal waste pond

Total expenditures for this three year effort amounted to $156,000 and included funds from the State Department of Health, the Stutsman County Soil Conservation District, the Agriculture Stabilization and Conservation Service, the North Dakota Game and Fish Department, and local landowners.

The other nonpoint implementation project was in the Sweetbriar Watershed located 25 miles northwest of Mandan in Morton County. This watershed is approximately 131 square miles in size and has been active for the past two years. To date, the following practices have been installed:

18 animal waste lagoon systems
12 feedlot runoff diversion and pond systems
8 grassed waterways
2 minimum and no-till demonstration meetings

In addition, the following activities are currently proposed:

4 animal waste lagoon systems
7 feedlot runoff diversion and pond systems
11 grassed waterways

These best management practices have a total cost of $246,000 not including the costs contributed by local landowners.

The Spiritwood Lake watershed is about 80 percent cropland and requires different types of best management practices than the Sweetbriar Watershed which has a significant number of dairy farms and pasture land. Both of the lakes that are located in these watersheds are highly eutrophic and become choked with algae and aquatic vegetation during the summer months. Both lakes have also experienced fish kills due to the low dissolved oxygen concentrations resulting from decay of organic material. With the installation of best management practices and other in-lake treatment processes, these lakes should maintain their usefulness as recreational areas in North Dakota.

The studies and monitoring efforts that the Department of Health has conducted in North Dakota indicate that we will never fully eliminate nonpoint sources of pollution. The naturally occurring rich soil of North Dakota which produces the abundant harvests of crops and livestock also provides sufficient nutrients to the runoff waters from adequately protected areas to cause eutrophication in our lakes and streams. However, we can make progress in controlling the amount of nutrients and sediment that result from agricultural practices. Our monitoring has indicated that grassed waterways and the elimination of barren soil can reduce the amount of nutrients and sediment that end up in our lakes and streams.

The control of nonpoint sources is going to take a significant amount of time. The 208 plan identified the year 2000 as the target date for the installation of all best management practices. The planning, design and construction of many of the best management practices can take up to three years to complete. I do not believe that there are sufficient technical personnel available to design and install all best management practices within a four year time frame. The nonpoint source control program does need additional funding and personnel in order to adequately address the problem even by the year 2000. The scarce funds

ː available for nonpoint source control should be used for ing best management practices rather than developing stacks of ıd planning for planning's sake.

th Dakota State Department of Health would have no objection to dment to the Clean Water Act requiring states to begin imple-on, if they have not already done so, of a nonpoint source program. The details of this program should be negotiated the state and the Federal Environmental Protection Agency. This llow individual states the flexibility to determine whether ory or nonregulatory programs are appropriate for the different f nonpoint problems such as construction, agriculture, or urban present in each particular state. The federal overview could the effectiveness of each particular program and recommend iate changes as the program is implemented.

partment would also request that all U.S. Department of Agri- programs, especially the major agricultural programs, be com- with the soil conservation program and the nonpoint source program. The landowner who has developed and follows a sound ation plan should receive a bonus for producing his crops on ed acreage. He should not be penalized for following a con-on plan as most major farm programs have done in the past. ly, those landowners that do not follow a conservation plan can eir Class VI lands and then set those lands aside in nonproducing and still keep their best land in production. This produces e effects for the soil and water resource and the overall goals grain production control program.

nary, the North Dakota State Department of Health supports the t that a nonpoint source program must be developed and implemented ı state. The specifics for that nonpoint pollution program should eloped consistent with each individual state needs. In addition, jor farm programs should not provide a disincentive to conser- farming practices. Thank you for the opportunity to present this ation.

THE IZAAK WALTON LEAGUE OF AMERICA
INCORPORATED

August 19, 1983

Honorable David Durenberger
1020 Plymouth Building
12 S. 6th Street
Minneapolis, Minnesota 55402

Attention: Miss Shirley Hunt

Re: Committee on Environment and Public Works Non-point Source Water Pollution

Dear Senator Durenberger:

It is a pleasure to appear and to offer comments on the important subject of non-point pollution. My years of activism and my experience in five years of service as a Pollution Control Agency Board Member for Minnesota, and my experience in planning as a member of the Western Lake Superior Sanitary District Board, all point to the conclusions reached by so many individuals, that this problem continues to be a significant, and in many areas the maximum contributor, of pollution to our waterways. Indeed, as you have so aptly pointed out, the previous efforts, certain exceptions not withstanding, have basically been to plan and not to implement. The so-called 208 Program did a good job of defining the problem; unfortunately, its primary impact was one of paper movement, one of frustration by the planners, and to environmentalists, and its implications angered many small business people and members of the farming community, as it appeared to be overkill in terms of the amount of government direction introduced into their daily lives.

Let me point out some facts that I believe should suggest again to the Committee the magnitude of the problem. Estimates vary, but the variance is slight, the conclusions are essentially the same. Non-point source pollution provides approximately one-half of all the conventional water pollution problems in America. In many cases, non-point source contributions from agriculture, urban areas, forestry, and construction sites overwhelm the efforts made to date to address the point source contributors.

In other words, the millions of dollars spent to clean up point sources are being overwhelmed by non-point source pollution. Here are some statistics: 75% of all of our sediment, 90% of fecal and other coliforms, 80% of nitrogen, 50% of phosphorus, a major cause of pesticide pollution. In other words, the pesticides would stay where they are and largely break down in the soils were it not for loss of soils to waterways and then converting into serious pesticide pollution problems. Also, our non-point source problem is a major cause or source of biological oxygen demand.

The important thing to point out is that we need not continue through inaction and confusion to permit this to continue. There are management practices that are readily available that can for most of the problem, provide technical solutions. Techniques are available for reducing soil erosion that have proven their effectiveness over the past four decades. Similarly effective erosion techniques have been demonstrated for construction sites and for mines, and while there still are uncertainties and problems about specific practices, such as no till versus till, (the volume of herbicides and pesticides) largely the technical and scientific questions have been answered.

The purpose of my testimony this morning is not to blame farmers, or to blame urban planners, or construction industry representatives, foresters or miners. The purpose of appearing this morning is to indicate to you the seriousness of the problem, my strong belief that we must act now, my belief also that we can act by cooperating with our friends in the farming, construction and other trades, to head off what in the future would be far stronger mandatory controls than if we can solve the program now. I must emphasize that citizen involvement, represented at all levels and at all interests, is an important part of moving forward on non-point source controls. If we don't work together with the farming land owner, with community leaders, we may be able to put into effect a law or series of regulations, but effective implementation will be far less likely.

The characteristics of the Durenberger-Chafee Amendment which I particulary appreciate are the following:

1. Implementation plans are to be set by the states with the cooperation of local units such as soil conservation districts.

2. The goal is to achieve good average management practices that are readily achievable now and that have been used by responsible landowners all along. Only those who have not yet acted responsibly and reasonably, will have to change their practices in order to comply with state programs.

3. A four year deadline gives adequate time and it is necessary that an adequate, but specific time frame be involved here in order for us to induce reasonable movement towards completion of our goals.

4. The management practices must be achieved under the Durenberger Amendment whether or not grant money is available. It is my understanding that this is not a grant program, that there is money available for reimbursement, but the goals requiring these management practices are to be completed with or without federal subsidization.

5. Consistency - federal consistency is one of the points as I understand it, being developed by the proposed language in this non-point source amendment. By that I mean that we're not going to subsidize farmers for example, for crop payments who do not meet minimum standards. (The standards that any prodent land manager would meet, in terms of land use practices.)

6. The role of the federal oversight here is clearly important. That is, it permits the EPA to implement a plan of non-point source control where the state has failed to act within a reasonable time frame. I would encourage you to permit citizen's lawsuits against states as another tool which might be very effective in preventing EPA from having to take action.

In summary, this is a modest but intelligent and necessary step now. I must again emphasize that the 208 Program conceptionally was sound, but it failed amongst other reasons primarily because it was not mandatory and I point out again that with a few exceptions it largely has been an exasperating exercise in paper shuffling and has not protected our valuable natural resources.

Recently my son and I spent two to three days north of Clinton, Iowa along the Mississippi River, an area that I loved and spent many hours on as a young man. Some of our most valuable midwestern resources lie in the pools upstream from the dams and locks that are a part of the navigation system on the Mississippi River. Much of the silt and sediment coming from the adjacent hinterlands have suffocated significant fishery, waterfowl and fur bearing areas. Not only is there a tremendous amount of sediment being deposited, but it brings with it all of the pollutants represented by our urban, agricultural, and forestry components. When one looks at the cost of preventing or reducing the non-point source problems, that cost pales in comparison with the destruction of natural resources by permitting continuation of the present problem at the present scale.

It is a fact that a large percent of our non-point source problem occurs on a small percent of our lands. This occurs either because we're improperly using marginal lands, or we are using improper stewardship on lands that are suitable for farming. For example, for every one ton of corn raised by an Iowa farmer in 1977, five tons of soil were eroded by water in that state's crop lands. For each pound of food consumed in the United States that year, over 22 pounds of soil were eroded from all agricultural lands by water. The average rate of water erosion of crop land alone was more than 89 tons per second nationally. The Department of Agriculture has identified about 50% of total crop land areas as being "erosion limited", meaning that it has the potential for serious erosion. These and other similar areas can and must be dealt with in a responsible fashion, not with voluntary programs that will largely have the same effect and lack of action as we've experienced in the past decade or so.

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I mentioned earlier in my comments that we don't come before you this morning to criticize any group, but to work with the farmers and the others affected by the non-point source problems daily in their lives. We would like to work with groups such as the Farm Bureau to help us better understand their management problems on a day to day basis so that program implementation is done with the minimum intrusion on their daily lives and with the minimum impact economically. It seems to me, Senator Durenberger, that this is exactly what the amendment you fashioned attempts to do; and that is to provide us with a start on a long neglected serious problem, yet attempt to do so in a way that maximizes the involvement of the state and local units of government and does little to interfere with the daily life of reasonable managers on the lands. Yet, at the same time, this amendment requires action through federal oversight, also provides a set time schedule, also provides funding. All of these things are laudible and we're deeply appreciative of your leadership and your efforts.

Sincerely,

David F. Zentner, Former National President
Izaak Walton League of America, Inc.
824 Norwest Center
Duluth, Minnesota 55802

NATIONAL WILDLIFE FEDERATION
1412 Sixteenth Street, N.W., Washington, D.C. 20036 202—797-6800

STATEMENT OF WAYNE BARON,
NWF NORTH CENTRAL REGIONAL EXECUTIVE,
ON BEHALF OF THE NATIONAL WILDLIFE FEDERATION
AT THE SENATE HEARING ON NONPOINT POLLUTION
IN MOREHEAD, MINNESOTA AUGUST 24, 1983

Senator Durenberger and Senator Burdick --

I am Wayne Baron, the National Wildlife Federation's North Central Regional Executive for North Dakota, South Dakota, Minnesota and Wisconsin. Many of our members in this region are farmers, ranchers, fishermen and hunters with an intense interest in the quality of this nation's waters. I appreciate this opportunity to discuss the need to control nonpoint source pollution because of its impact on the waters of the north central states.

North Dakota

In North Dakota, nonpoint sources are responsible for most surface water degradation. Water quality worsens during peak runoff periods such as the spring snowmelt.

Existing nonpoint control programs have been moderately successful in selected areas. They include lake restoration projects and educational/research demonstration projects. The largest and most successful lake project has been undertaken at Spiritwood Lake where the North Dakota State Department of Health is using funds from the North Dakota Game and Fish Interest Fund and the Agricultural Conservation Program to implement agricultural best management practices (BMPs) to control erosion. To date, BMPs installed include 22,000 feet of grassed waterways, 3,800 feet of terraces, tree plantings, critical area seedings, and stock ponds. Future BMPs planned on this site include an animal waste system, desilting dam, crop residue management, and additional trees and waterways. Other lake restoration projects are underway at Brewer Lake, Sweet Briar Lake and Crown Butte Dam.

In addition, the North Dakota State University Extension Service is under contract to promote no-till farming by developing educational programs and assisting with implementation.

The North Dakota Farmers Union is currently working to pass legislation requiring a mandatory state program for soil conservation. Under such a program, implementation of BMPs would be voluntary unless someone files a complaint against a particular landowner. In such cases, the soil conservation district would verify the complaint and, if a problem was found, would require implementation of conservation practices.

North Dakota does not have any programs to control urban runoff which plays a minor role in nonpoint pollution in the state.

South Dakota

South Dakota's agricultural nonpoint problem is exacerbated by widespread conversion of rangeland to poorly-managed farmland which has resulted in severe erosion. Also, drainage from both active and inactive mines contributes to water quality degradation in waters such as the Belle Fourche River and Whitewood Creek.

In addition to agricultural nonpoint pollution of surface waters, contamination of shallow groundwater aquifers by nitrates from improperly applied fertilizer makes nonpoint pollution the major groundwater quality problem in South Dakota. For example, in Gregory County, every town in the county has at least one municipal well in which nitrate levels exceed EPA limits.

South Dakota has developed a number of programs to control nonpoint pollution. Local conservation districts provide education, information, and technical assistance to landowners. In addition, 67 of 69 of the districts have adopted and implemented local soil erosion and sedimentation control ordinances which specify BMPs. Use of BMPs is promoted by the districts and, initially, is voluntary. However, if anyone complains about a pollution problem, the landowner must develop and implement a district-approved plan within six months.

The State has identified 21 priority water quality study areas. Ten of these areas have BMPs in place including conservation tillage, animal waste control, contour farming, strip cropping, and fertilizer management. Four more areas are in the planning stage.

One of nine projects under the federal Model Implementation Program was conducted on Lake Herman in Lake County. The purpose of the program was to demonstrate how EPA, the U.S. Department of Agriculture, and the states could work together to control nonpoint pollution from agriculture. The project focused on controlling sediment and pollution from animal waste from croplands and grasslands. BMPs used include terraces, crop rotation, and grazing land protection. To date, 85% treatment of the watershed has been achieved.

In addition, a project under the Federal Rural Clean Water Program on Oakwood Lakes/Lake Poinsett used BMPs to control nonpoint pollution and prevent damage to the underlying Big Sioux Aquifer. Nine South Dakota lakes have been studied under the Clean Lakes Program. A study under the Nationwide Urban Runoff Program was conducted on Rapid Creek in Rapid City to characterize the impacts of urban runoff from rainfall and snowmelt runoff and evaluate its effects on high-quality cold water fisheries. No results are available yet from this study.

Minnesota

The State of Minnesota has more than 12,000 lakes, the majority of which will undergo eutrophication unless management of nonpoint sources is undertaken. Point sources only impact about 2% of these lakes. In addition, it has been estimated that 85% of the phosphorous overload in these lakes is from nonpoint pollution.

The Minnesota River is an example of a waterbody which is seriously impacted by agricultural and urban runoff. According to the Minnesota Pollution Control Agency, "nonpoint source inputs of nutrients and suspended solids are so substantial, no immediate improvement is projected in the river water quality."

Minnesota has developed a voluntary state plan with a cost-sharing component to control nonpoint pollution; however, funding is not adequate for full implementation. Additional funding for the plan is being sought from the state legislature.

Minnesota is also involved in a number of lake classification and restoration projects and has conducted about a dozen projects under the Clean Lakes Program. In addition, a project on Garvin Brook in Winona County under the Federal Rural Clean Water Program was designed to control agricultural runoff and erosion. Best Management Practices have been partially implemented in this ongoing project.

Wisconsin

In 1978, the Wisconsin Fund Grant Program was enacted. This program, administered by the Department of Natural Resources, provides cost-share money for the cleanup of nonpoint pollution. Grants are made for projects in priority areas and implementation of these projects is carried out by county agencies. To date, $21 million have been appropriated and 11 major projects are being implemented, 2 more are being planned, and an additional 6 will begin this fall. Also, 27 smaller-scale projects are being conducted by the state and 14 lakes are being studied under the Clean Lakes Program in Wisconsin.

Finally, a study of street-sweeping effectiveness was carried out under the Nationwide Urban Runoff Program in Milwaukee. The results were inconclusive. However, it was noted that a significant portion of pollutants (lead, biological oxygen demand, suspended solids, etc.) in the Menominee River can be attributed to urban runoff.

While the north central states have some scattered programs with varying effectiveness, what is needed is a federal program which places a high priority on addressing all of the states' waters where nonpoint pollution is a critical problem. Current state and federal initiatives are not enough. For that reason we support the Chafee-Durenberger proposal. It will expand on what we have learned and will establish a nationwide program that relies on the states to develop management practices to be implemented in all the areas where water is not meeting the national goal of water safe for fishing and swimming.

The Chafee-Durenberger Proposal

We believe all five elements of this proposal -- (1) state identification of problem water bodies, (2) state and local identification of practical, average management practices, (3) implementation of practices four years after enactment, (4) federal consistency with state programs, and (5) federal implementation as a last resort--are essential if the nation's waters are to meet the 1983 goals. Each of the steps in the proposal is a reasonable expectation that builds on programs already in place.

The only improvement we would urge the Committee to make is to follow the example of North Dakota and South Dakota by making the nonpoint pollution control program subject to the citizens' suit section of the Clean Water Act. In our states we have given citizens the right to identify problem nonpoint sources and required use of BMPs to solve the problem. Likewise, Congress should make the nonpoint program mandatory for the states to develop and then give citizens the right to sue if a state does not develop a program.

Our nation is spending billions of dollars correcting the problems created by nonpoint pollution--dredging harbors and rivers, fertilizing depleted topsoil, and stocking fish in dying lakes. I congratulate you, Senator Durenberger, for your foresight and leadership in crafting a solution to the problem. It is a good first step. On behalf of the Federation, I urge the Committee to adopt it.

Clean
Water
Action
Project

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STATEMENT OF

PEGGY LADNER

FOR

CLEAN WATER ACTION PROJECT

BEFORE THE

SENATE COMMITTEE ON ENVIRONMENT

AND PUBLIC WORKS

ON NON-POINT SOURCE POLLUTION

AUGUST 24, 1983

Senators, I am Peggy Ladner, Midwest Director for Clean Water Action Project. I thank you for the invitation to present our views on the problem of non-point source pollution and the program which Senator Durenberger has proposed for controlling this problem.

Clean Water Action Project has been working on the issue of water quality for twelve years and our staff assisted in the design and language of the Clean Water Act of 1972. In six states and the District of Columbia we are out each evening talking with thousands of citizens about water pollution issues and our work. We find overwhelming support for a strong clean water program everywhere we go. In Minnesota alone we have collected over 120,000 signatures on a statement of support in favor of efforts to prevent and clean up contamination of water. Over a third of those who sign contribute to our work.

Our organization and many of the citizen groups we work with wish to thank Senator Durenberger for his initiative and hard work on the non-point source control program being considered here today. We feel it is a reasonable program that will receive wide-spread public support if passed into law.

The Non-Point Source Pollution Problem

The authors of the Clean Water Act in 1972 recognized the need to control more than just the industrial and municipal pollution being discharged from a pipe. They addressed the problems of runoff or non-point sources of pollution under Section 208 of the Act. This concern for non-point source pollution was reaffirmed in the 1977 amendments but neither the 1972 law nor the 1977 amendment required states to implement programs to control the problem.

Partially as a result of this lack of required cleanup programs, the non-point source contribution to the nation's water pollution problems is enormous. It has been estimated that 75% of all sediment, 80% of the nitrogen, 90% of fecal and other coliform and 50% of the phosphorous entering the nation's waterways comes from non-point sources. It is a major source of the pesticide pollution, a major source of biological oxygen demand, and an important source of toxic pollutants. Rivers like the Mississippi and Minnesota and lakes such as Calhoun and Detroit Lakes in Minnesota are all affected.

Minnesota (along with 36 other states) has reported to EPA that non-point source pollution is the major factor which is interfering with the achievement of water quality objectives of the state. Non-point source pollution consists of run-off from croplands, urban areas, construction sites, mines and silviculture activities. In addition to slowing the achievement of water quality objectives, the loss of top soil threatens the long-term health of the farm economy. As a final concern, most ground water pollution is from non-point sources.

Others more qualified will address the interrelatedness of water pollution and the farm economy. But because Senator Durenberger chairs the Senate Subcommittee with jurisdiction over the Safe Drinking Water Act, the link between ground water contamination and non-point sources deserves a brief discussion. The sources of ground water pollution are generally non-point sources such as septic systems, landfills, agricultural practices, industrial waste lagoons and impoundments, mining and accidental spills. The contaminants include salts, heavy metals, nitrates, complex organic compounds and even radioactive materials. Over half of all Americans obtain their drinking water from ground water through municipal water systems or individual wells. It is lamentable that despite the essential role of ground water in the Nation's health and economy, many do not understand the interconnection between surface water and ground water. Furthermore, they do not appreciate how slowly ground water--and pollutants in it--move and, therefore, how difficult it is to solve ground water contamination problems. It is entirely consistent with the role that Senator Durenberger plays in influencing both the Clean Water Act and the Safe Drinking Water Act that he has taken the lead in placing the nation on a cleanup schedule for controlling non-point source pollution. For this he should be commended.

Existing Knowledge and Experience

A wealth of knowledge exists about the extent of the non-point source pollution problem as well as the technology available to greatly diminish the problems. States have developed plans and in some instances established volunteer or mandatory control programs under the 208 programs, the Rural Clean Water Program and the Clean Lakes Program. Also, the Model Implementation Program which is a cooperative effort between EPA and the Department of Agriculture tested for the best management practices in seven agricultural areas. Information gathered in these programs will be particularly valuable when developing control programs under the Durenberger proposal.

The following are examples of management practices for the major contributions of non-point source pollution.

> Agricultural runoff

contour plowing, use of conservation till methods, establishing grass waterways to reduce erosion and filter pollutants from runoff, fencing to keep animals out of streams, collecting tail water in ponds and reusing it

> Urban runoff

using vacuum or mechanical sweepers on city streets, paving roads and parking lots with a permeable pavement so that water can seep through, controlling the use of chemicals for weed and pest control, cleaning catch basins and sewer pipes

> Construction runoff

preserve as much of the natural topography and drainage as possible to minimize surface water runoff and erosion, protect areas which are especially susceptible to erosion by placing them off-limits to construction or by requiring very stringent erosion prevention practices in such areas, expose as little soil as possible and cover it with sod or mulch if it must be exposed

> Silviculture

carefully planning road systems to reduce total length required, keeping roads and trails out of watercourses and areas near surface water bodies, avoiding the use of fill which tends to erode very easily, preventing erosion of trails, roadsides and fill by immediate mulching or seeding, avoiding excessive use of herbicides

> Mining activities

Surface mines: preserving topsoil for later reuse and protecting topsoil from erosion while it is being stored, insulating polluting material from ground water by using impermeable material such as clay, revegetating areas stripped of soil cover, prohibiting mining in or near watercourses

Underground mines: using strong and durable roof supports to prevent collapse, preventing infiltration of water into the mine, sealing mines to prevent polluted water from seeping out

In addition to information on the types of management practices which can be employed to control non-point source pollution, states have documented successful results using sound management practices. The State of North Dakota has experimented with placing grass belts along the Red River with favorable results. In Wisconsin Vance Creek, which had been an excellent trout fishing stream, was downgraded from a Class I to a Class III stream because of runoff pollution. Through the State's efforts in stream bank work, animal waste control and cropland controls, the creek has shown considerable improvement. The State expects to upgrade the stream to at least a Class II trout stream very soon. These examples focus on rivers which will show results much more quickly than a lake because of the continual flushing action of the moving water.

In Minnesota, studies by the MPCA and EPA show that approximately 60% of the total nutrient load of any lanke is due to non-point source pollution. There were no success stories from non-point source controls on lakes, but one lake that experienced less improvement than expected when point source pollution was controlled. While it may be too early to tell, scientists from Gray's Freshwater Biological Institute studying Lake Minnetonka have found very little improvement in water quality since several sewage treatment discharges were diverted and are attributing the lack of improvement to non-point sources of nutrients, particularly phosphorous. One of the sewage discharges was diverted as many as ten years ago.

As with many government programs, the quality and results will vary state to state. With non-point source programs the variations are the result of many factors including weather, availability of funding and the aggressiveness with which the State has tackled the problem. Wisconsin has had a very good program and is one the Committee may want to study more closely.

Elements of a Good Non-Point Source Pollution Control Program

Because of the seriousness of the non-point source contribution to the water pollution problem in the United States and the experience some states have had in addressing the problem, we feel there are some key ingredients necessary to a good non-point source control program.

First, the best programs are those which manage all the activities which contribute pollutants to the water. It is important that Congress not forget the water quality objectives of swimmable and fishable waters it set forth in the law. Controlling, for instance, only agricultural runoff will not achieve water quality objectives.

Second, the program should require participation and implementation by a certain date in all states. The biggest problem, next to money, that we have seen in tackling the problem is that the program is voluntary. Most states have simply studied the problems and made recommendations. Not enough progress has been made toward solving the problem. Regulatory approaches are often used in cities and with industries to achieve compliance with pollution laws. But in the farm community there is not a strong history of regulation. While both the urban/industrial community and the farming community should meet the compliance date in any non-point source management program, it would be preferable to encourage compliance among farmers through education, technical assistance and peer pressure first.

Third, the program has a much greater chance for success if it is developed at the State and local levels. This is because the sources of non-point pollution vary as widely as local climate, land use and management, geology and economic activity. Local citizen participation that has taken place thus far will only enhance cooperation as programs are developed and implemented in each state.

Fourth, the program should set the achievement of "Best Management Practices" as its long-term objective but begin with cleaning up the worst problems. Similar to the zero discharge goal put forth in the 1972 Clean Water Act, a higher standard as a long-term goal for the non-point source management program insures that no one will lose sight of the purpose of the program.

Finally, the federal financial support and administrative oversight is critical to the success of a good program developed at the state level. Money and technical assistance will enable states to move quickly to implement control programs. In speaking with Department of Natural Resources staff in Minnesota we found that they attributed Wisconsin's success with the Rural Clean Water Program to an early starting date. Because of recent financial hardships, farmers in Minnesota have been slow to participate in the Garvin Brook project. As with clean air, clean water is a national problem that is not confined within a state's boundaries. Cities like New Orleans that receive the Mississippi River after it has passed through several other states understand this all too well. For these reasons, the EPA is the best agency to oversee the programs.

The Durenberger Proposal

The proposal which Senator Durenberger has offered as an amendment to the Chafee bill is one that meets most of the elements of a good non-point source control program described earlier. It is a reasonable approach and one that could enable many states to meet their water quality objectives.

The following points in the Durenberger proposal result in a strong yet workable program:

(1) A targeted program.

The Durenberger proposal requires that states only look at those water bodies which are not currently meeting water quality objectives because of non-point source pollution problems. This allows states to focus their limited resources on those water bodies most affected. It also leaves states with the flexibility to focus on the non-point sources creating those problems.

(2) Programs developed at State and local level

It makes sense for each state to develop its own program.

(3) A compliance date for a mandatory program

The Durenberger proposal wisely departs from the past voluntary approach to non-point source pollution control. The problem is serious; it is costly and it crosses state boundaries. So all states must develop a program and see that identified pollutors are in compliance within 48 months after enactment. This compliance period has the advantages of providing enough time for states to get programs underway and it is not too long before the programs can be evaluated to be sure they are working well. In nearly every area of pollution control it has been proven that setting deadlines for compliance is important to success of the program and to business planning.

(4) Federal consistency

The Durenberger proposal prevents the Federal Government from continuing programs and financial assistance policies that are inconsistent with the states' non-point source management programs. Recent hearings held in Congressman Synar's Subcommittee provide a good example of the importance of this provision. The hearings focused on the federal mismanagement of hazardous waste. They demonstrated once again that the federal government does not always follow pollution control laws. At the very least, it seems reasonable to require that the federal government not interfere with state management programs.

The Durenberger proposal does not use the term "Best Management Practices" to describe the various techniques which may be employed to control non-point source pollution. In fact, the proposal calls for bringing bad managers in line with the average or commonly used management practices. While it is entirely reasonable to go after bad managers first, the Durenberger proposal creates no incentive to do better. Setting more ambitious long-term goals for the programs gives all the states something to work towards in the long run, particularly as more success is met and more management techniques developed. Senator Durenberger may also find, as have some of the staff at Clean Water Action Project, that people in many industries affecting non-point source pollution are more comfortable with the term "Best Management Practices" because it is familiar and understood.

Benefits of Non-Point Source Controls

As with all forms of pollution, non-point source pollution has costs to the public when it is not controlled. Preventing non-point sources of pollutants and the resulting improvement of water quality can mean real savings and other less quantifiable benefits to the public.

Minnesota can serve as a good case study when looking at the costs of water pollution and the benefits of cleanup because of its vast water resources. The State claims over 15,000 lake basins and 25,000 miles of streams and rivers. Most of the lake property in the state is private. In 1980, $500,000,000 was spent in Minnesota utilizing water resources for recreation. Of that total, $150,000,000 was spent by tourists from outside the state.

Some of the costs of non-point source pollution include increased cost of water treatment when removing more pollutants; increased costs of doing business in the state because of problems such as short-lived irrigation equipment and the sediment and salt in cooling water for industrial equipment; decreased property values when a lakefront home has an undesirable beach or has a contaminated well; expense involved in locating new drinking water supplies; higher health care costs when people and livestock drink contaminated water; costs associated with dredging of rivers and aquatic nuisance control (the DNR estimated that if they were charged with all the aquatic nuisance control in Minnesota lakes the bill would have totaled $14,000,000 in 1982) and loss of fish resources.

Of course many of these costs would be reduced or eliminated if non-point source controls were required in much the same way point source controls have been. Increased tourism, increased property values, more profitable businesses are also potential benefits. For the many reasons I have enumerated, it makes sense to spend the money to control non-point source pollution and to reap the economic as well as the aesthetic benefits. Our organizations urge Congress to move ahead with the Durenberger proposal and get started on a non-point source pollution control program.

Land Stewardship Project • 1717 University Avenue • St. Paul, Minnesota 55104 • (612) 646-5791

STATEMENT of Milo Hanson, Board Member, Land Stewardship Project, before a hearing of the Senate Committee on Environment and Public Works

August 24, 1983

Chairman Durenberger and other Members of the Committee:

Thank you for the opportunity to testify today before your Committee. My name is Milo Hanson. I'm a life-long farmer from Dawson, Minnesota, representing the Land Stewardship Project, an ecumenical program aimed at raising public awareness about the problems of soil erosion and farmland loss to development. I serve as an advisor to the Land Stewardship Project and share its assumptions that our precious farmland is entrusted to us as a gift from God and that the goal of every farmer and landowner should be to leave the land in better shape than when he or she received it. I also am immediate past president of the Minnesota Association of Soil and Water Conservation Districts.

First of all, I would like to commend the members of the Committee for this effort to come up with a management program to control non-point sources of pollution. Such a program is necessary and long overdue.

As a long-time conservation farmer and advocate of conservation I view the proposed legislation as another potential tool in the effort to combat soil erosion, a principal cause of non-point pollution to our waterways.

After years of working with the various state and federal voluntary programs, I'm convinced--somewhat sadly, I must admit--that we need to come up with some soil conservation measures that have some real teeth in them if we ever are to get our nation's soil degradation problems under control. The United States' nearly 50 years of voluntary conservation programs have resulted in a situation where we have scattered around the countryside marvelous conservation farms whose owners have cooperated over the years in various Soil Conservation Service programs. Adjoining these stewardship farms, however, are those whose occupiers haven't done a thing to stop the soil from blowing and washing away and don't have any intention of doing so in the future.

For that reason I'm glad to see that the draft of the proposed bill I've read includes a provision (paragraph g) that would allow for what's known as "cross-compliance." I'm convinced such a provision is vital to any effort to really get at the heart of the non-point pollution problem. For that reason, I'd like to address my testimony primarily to that point.

1983 AUG 22

By cross-compliance I mean the concept of requiring farmers to have a soil conservation plan in place on their cropland (or a conservation tillage system that keeps soil loss down to permitted levels) if they are to be eligible for the target and loan programs for the crops grown on that land. I'm convinced there is strong support for cross-compliance among the very farmers it would affect. As Iowa's Senator Jepson recently noted after his conservation-related hearings in Iowa, that may not have been true a few years ago, but it is today.

Senator Durenberger, you addressed the subject briefly in your statement on the Clean Water Act June 22 before the Subcommittee on Environmental Pollution. In that statement you noted your disapproval of "cross-over sanctions" which deny federal "assistance under one program to force compliance with a requirement in an entirely unrelated functional area."

The key word here, it seems to me, is "unrelated." You sight the hypothetical case of a farmer not receiving an FHA loan guarantee on his house because he is not using good management practices on his field as an example of an unrelated cross-over sanction.

Cross-compliance as previously defined does not comprise such an unrelated, and therefore undesirable, cross-over sanction.

Soil erosion, a principal cause of non-point pollution, is primarily a cropland problem. There is a direct causal relationship between the amount of soil erosion occurring on a parcel of cropland and the manner in which the land is being farmed. If appropriate tillage methods and conservation practices are being employed by the farmer, cropland erosion will be kept within tolerable limits. Therefore, it is entirely appropriate that eligibility for federal commodity target and loan programs which help enable a farmer to use a parcel of cropland be tied to the proper maintenance of that land.

Furthermore, regarding cross-compliance, we have to remember that no one would be forcing the farmer to participate in the federal loan and price-support programs. Participation is strictly voluntary. If the farmer chose to go it alone in the marketplace, he could, and he would be in a position to do whatever he chose to with his land. If, however, he chose to participate in the benefits the federal programs provide, he would be required to live up to his end of the bargain by taking responsible care of his land.

Support for the federal farm programs comes from tax dollars, as do the funds needed to clean up non-point pollution resulting from erosion. It is only reasonable that the taxpayer should expect farmers to fulfill their obligation to maintain the farmland resource upon which we all depend.

I should also add that I'm convinced that if cross-compliance is to be effective, efforts to implement and oversee it must be kept as local as possible. I share your perception as expressed in your statement to the Environmental Pollution Subcommittee last June: "In fulfilling its responsibilities under each step of the program we would expect each state to rely heavily on units of local government and jurisdiction, particularly the soil and water conservation districts."

As you know, soil conservation is a very "site specific" science. Conservation needs vary from one field to the next on an individual farm. Therefore, any effort to regulate run-off and curb soil erosion should be directed by those closest to the land, specifically the soil district supervisors, the county commissioners and the Soil Conservation Service district personnel.

I would conclude by urging that any non-point pollution legislation include provisions to provide adequate funding, not only for the actual costs of implementing measures to reduce non-point pollution, but for the costs of administering and overseeing the program at the local level. Existing state and soil district personnel, already overburdened in many areas, should not be expected to take on the additional work load this needed program would bring without more personnel.

Thanks again for this opportunity to testify.

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September 9, 1983

ADDITIONAL TESTIMONY BY CLARENCE BUERMAN
ON BEHALF OF THE MINNESOTA STATE BUILDERS ASSOCIATION
FOR THE SENATE COMMITTEE ON ENVIRONMENT & PUBLIC WORKS
AUGUST 24, 1983 HEARING ON NON-POINT POLLUTION

Twenty-two states and D.C. have enacted Erosion and Sediment Control legislation. Most of these laws require their local governments to adopt ordinances which conform to standards and criteria. Agricultural land uses are usually exempt from the requirements of these laws except in those few cases where the law addresses agricultural run-off exclusively.

The "typical" program is structured as follows:

1. The state establishes standards and criteria.
2. Local governments must adopt standards and criteria in their ordinance.
3. Local ordinance requires land developer to submit erosion and sediment control plan to the soil conservation district or local department of public works for approval prior to issuance of building and grading permits.
4. Developer is required to post performance and maintenance bond to assure controls are implemented.
5. Failure to implement controls or to conform to plan usually results in:
    A. All construction activities shut down on project until controls are implemented.
    B. Forfeiture of bonds.
    C. Fines.
6. Local government releases bonds when a healthy stand of vegetation is growing on the site.

Attached is a 1980 report which reviews five State Soil Erosion and Sediment Control Laws. The report was prepared by the National Resource Information Systems Project for the National Conference on State Legislatures. This report summarizes the 1980 existing programs relating to construction site soil erosion and sediment control laws.

NON-POINT SOURCE POLLUTION IN MINNESOTA

Minnesota land developers, land owners and builders respect the natural assets and resources of the state of Minnesota. Municipal ordinances, watershed district regulations and state laws have been adopted to insure orderly land development and improvements, and control and protect the natural topography and vegetative setting of the land and water areas.

In 1982 the Minnesota Legislature passed Chapter 509 which is the Surface Water Management Law. This legislation requires that each watershed district within the seven county metro area, where most major development construction occurs, to prepare water quality plan by 1985. Many municipalities and watershed districts within the seven county area currently have rules and regulations which serve to safeguard the water quality in their area.

The purpose of these requirements is to safeguard the natural resources of the district by establishing minimum requirements for the control and regulation of grading and earthmoving, to provide measures to control soil erosion and sedimentation, and to establish procedures by which requirements and measures are to be administered and enforced. Provisions are adopted under the authority of and in compliance with, Minnesota Statute Section 112.43, as amended.

The typical regulations allow for the enforcement of the municipal and/or a watershed district plan, a system requiring permit approval for various types of land development and penalties for any violations.

Property owners are required, in many instances, to obtain permit approval for the activities listed below:

- Comprehensive Stormwater Management Plan
- Land Development Plan
- Final Site Drainage Plan
- Use and/or Appropriation of Public Waters
- Bridge and/or Culvert Construction
- Wetland Alteration
- Shoreland(Riparian) Improvement
- Private Drainage System
- Individual Sewage Treatment System

In addition, road and highway construction plans, including plans of water main, sanitary sewer and storm sewer construction must be reviewed.

Necessary exhibits to accompany the Permit Application are a Stormwater Management Plan and supportive exhibits showing:

- Preliminary Plat
- Proposed land use
- Delineation of areas contributing runoff to the site
- Runoff rate from the developed site not exceeding the runoff rate of the site in its undeveloped condition including undeveloped and developed runoff rates for both a one-year and a 100-year return frequency rainfall event.

- Determination of a normal, 1-year and 100-year water elevations for stormwater retention areas.
- Storage volume determination and detention site contours and/or cross-sections.
- Food plain, shoreland and/or wetland delineation.
- Outlet structure details with dimensions and elevations related to MSL datum.
- Details of any structure(s) that will provide floatable trash removal and oil recovery capabilities to treat runoff from a 1-year rainfall event.
- Identification of lands over which the applicant has jurisdiction.
- Description of surface and subsurface soils.
- All supportive hydrologic computations.
- Grading and Sediment-Erosion Control Plan showing:

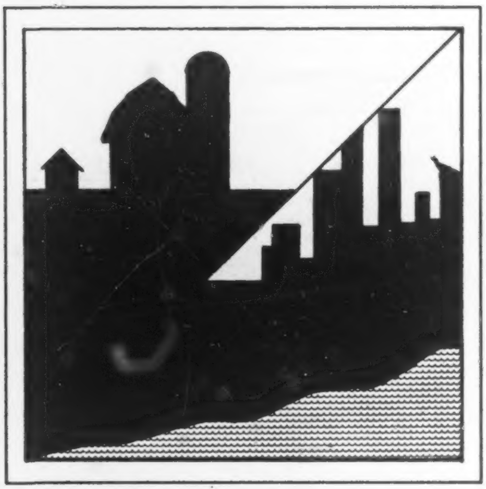
  - Existing and proposed contours
  - Measures that will be employed to prevent soil erosion and contain sediment on the site during the construction period
  - Measures that will be used to establish cover on the site once construction has been completed.

In summary, many states are currently addressing the problem of non-point pollution and adopting local ordinances and regulations to address the issue. In Minnesota we have an extensive system which will help protect the water quality and natural resources of our region. Non-source pollution is a problem which must be addressed at the local level by adopting regulations which address the specific concerns and problems of each geographic area.

I sincerely appreciate the opportunity to present the views of the Minnesota State Builders Association on a very important issue to all the citizens of Minnesota as well as the United States. As land developers and builders, we are concerned about the natural resources of our area and will continue to cooperate in addressing potential pollution problems.

November 1980

STATE SOIL EROSION AND SEDIMENT CONTROL LAWS



A REVIEW OF STATE PROGRAMS AND THEIR NATURAL RESOURCE DATA REQUIREMENTS

Prepared By: Susan B. Klein
Natural Resource Information Systems Project
National Conference of State Legislatures

MARYLAND

TITLE: Sediment Control Act
Ann. Code Md., Nat. Res., Sec. 8.1101 - 8.1108

LEAD AGENCY: Department of Natural Resources
Counties and Municipalities

STATE CONTACT: Roy E. Benner, Sedimentation Specialist
Maryland Department of Natural Resources
Water Resource Administration
Pawes State Office Building
Annapolis, Maryland 21401
301/269-2265

MARYLAND'S SEDIMENT CONTROL PROGRAM

Introduction

The Maryland Law enabling the creation of soil conservation districts was passed in 1937. Maryland's committment to solving erosion and sediment control problems in urban areas formally began in 1961 when the Attorney General declared sediment to be a pollutant. The five major sources of sediment pollution in Maryland were found to be: agriculture, silviculture, construction activities, surface mining and hydraulic modifications.

More comprehensive sediment control legislation applying to construction activities was adopted in 1970. The Statewide Sediment Control Act, the first such law in the nation, became effective July 1, 1970. It authorized the Department of Natural Resources to adopt criteria and procedures for counties and local districts for the implementation of soil and shore erosion control programs. Revised standards and specifications for soil erosion and sediment control became effective in July 1975. The philosophy of the 1970 legislation is that "after-the-fact" approaches to controlling sediment are far too costly and damaging to both land and water resources. A preventative approach was chosen: Carefully designed sediment control plans were required to correlate with grading plans, assuring that erosion is controlled before serious problems occur.

It was found that even with good erosion control during development, followed by good vegetative stabilization, streams in the drainage area continued to run muddy during storms. Increased runoff resulting from urban development caused increased erosion and scouring of the once stable stream banks. The need for on-sight stormwater retention/ detention elements in sediment control programs was recognized, and on April 6, 1971 the Attorney General ruled that "protective stormwater measures may be imposed by the districts under the 1970 sediment control law." At present, the state is urging the districts and the counties to consider adopting storm-water retention as an element of local sediment control programs. The state is encouraging techniques to increase which will be the key to eliminating or at least reducing, erosion of the streambed and banks.

The Department of Natural Resources is responsible for overseeing the state sediment control program which requires that before land is cleared, graded, transported, or otherwise disturbed for any purposes, the proposed earth change must first be submitted to the local district for approval. In addition, each county and municipality is required by law to adopt a grading and sediment control ordinance subject to the approval of the Department. All 23 counties had adopted ordinances by the end of 1972.

A great deal of liaison, cooperation and consultation among federal and state agencies, districts, counties, cities and the private sector has been carried out to bring the total program to its present stage of implementation.

A recently completed survey conducted by the U.S. Geological Survey, partially funded by the Water Resource Administration, showed that the sediment control program resulted in improvements in grading practices and control measures. This has resulted in a 60 to 80 percent reduction in the sediment yield from construction sites between 1966 and 1974.

Major Program Features

1. A county or municipality may issue grading and building permits as required by law. No grading or building permits may be issued until the developer submits a grading and sediment control plan approved by the local district and certified to be followed.

2. Counties and municipalities have the authority and responsibility for developing the local sediment control program and the procedures and ordinances to implement and enforce it. Municipalities were required to adopt ordinances by July 1, 1972 while counties had to adopt ordinances by March 1, 1972.

3. Agricultural land management practices, construction of agricultural structures, and construction of single family residences on lots of two or more acres are exempt from the provisions of the law. (Many have questioned the exemption of agricultrual practices, which may result in the development of a more regulatory approach to agricultural activities.)

4. The Department of Natural Resources has leadership in assisting local governments, including districts, in carrying out their responsibilities. It is required to review and approve all land clearing, soil movement and construction by any state or federal agency.

5. A violation is a misdemeanor subject to a $5,000 fine or one year in prison.

6. The Water Resources Administration supervises the statewide program for sediment pollution control. The Agency assists local governments to maintain and update satisfactory sediment control programs and proposes regulations to be implemented by state agencies for constructon works of improvement.

The Department is required to:

(a) review and approve county and municipal grading and sediment control ordinances which must be consistent with the guidelines and regulations adopted by the Department;

(b) review and approve sediment control plans in conjunction with the districts;

(c) review operating sediment control programs;

(d) provide inspection and enforcement authority in conjunction with local government authorities;

(e) adopt criteria and procedures to be used by counties and local districts to implement soil and shore erosion control programs;

(f) review and evaluate all sediment control programs every three years; and

(g) take action needed to enforce the adoption and implementation of a county, municipality or the Washington, D.C. Sanitary Commission's grading and sediment control ordinance.

Inspection and enforcement is the responsibility of the county or municipal authority designated by the grading and sediment control ordinance. Appropriate enforcement action will be taken if the sediment control plans and grading permits are not complied with.

7. A beach erosion control district was established to maintain the Atlantic Coast beaches of the state and the integrity and continuity of the dunal system.

8. Principals of Reducing Erosion and Sedimentation from Developing Areas

(a) Plan the development to fit the particular topography, soils, waterways and natural vegetation at a site.

(b) Expose the smallest practical area of land for the shortest period of time.

(c) Apply "soil erosion" control practices as a first line of defense against on-site damage.

(d) Apply "soil erosion" control practices as a perimeter protection to prevent off-site damage.

(e) Implement a thorough maintenance and follow-up operation.

MINNESOTA

TITLE:	Soil and Water Conservation Districts Law Minn. Stats. 40.01 - 40.15
LEAD AGENCY:	Soil and Water Conservation Board
STATE CONTACT:	Vernon Reinert, Executive Director Soil and Water Conservation Board Department of Natural Resources Box 19 Centennial Building St. Paul, Minnesota 55155 612/296-3767

MINNESOTA SOIL AND WATER CONSERVATION PROGRAM

Introduction

Improper land use practices have caused serious wind and water erosion on the state's lands, runoff of polluting materials, increased costs to maintain agricultural productivity, increased energy costs and increased flood damage. Land occupiers have the responsibility to implement the practices which correct those conditions and to conserve the soil and water resources of the state.

It is the policy of the State of Minnesota to encourage those who occupy land to conserve the soil and water resources through the implementation of practices that effectively reduce or prevent erosion, sedimentation, siltation and agriculturally-related pollution.

Minnesota currently operates a non-regulatory erosion and sediment control program. The 1977 Soil and Water Conservation Districts Law does not require soil and water conservation districts to adopt rules and regulations to control erosion and sedimentation. The program encourages land occupiers to implement best management practices to control sediment and erosion by providing, through the districts, cost-sharing assistance up to 75 percent of the total cost for upland erosion control and agricultural waste measures. In addition, erosion and sediment control activities on streambank, lakeshore and roadside sites may be undertaken at a rate of up to 50 percent of the total cost. Up to 10 percent of the total annual appropriation may be used for technical assistance grants to districts and 5 percent for administrative costs of districts.

The Soil and Water Conservation Board has the prime responsibility for implementing the erosion and sediment control program. The Act authorizes the Board, in cooperation with local districts, to administer the cost-share program with land occupiers. To receive assistance, landowners are required to install and maintain for 10 years erosion and sediment control practices which will also protect water quality in Minnesota. Legislation proposed in the 1979-1980 legislative session may be reintroduced during the 1981 legislative session in the hopes of establishing a regulatory program similar to Iowa's soil conservation program. If adopted, local districts will be authorized as the major regulatory authority for Minnesota's soil and water conservation program. Districts will be required to develop soil loss limits and additional funding for critical problem areas will be proposed. It has been suggested by the Executive Director of the Soil and Water Conservation Board that a regulatory program would be more successful in treating critical soil erosion, sedimentation and water quality areas.

Major Program Features

1. The Soil and Water Conservation Board is required to prepare, in cooperation with local districts and appropriate agencies, a program plan for the accomplishment of its duties. The program plan is used in decisions to allocate funds to the districts.

2. Upon receipt of grant monies, districts are responsible for making all local decisions concerning the program. Districts, after approving a project, are responsible for issuing payment.

3. The State Cost-Share Program. The State Board may allocate funds to districts to be used to share the cost of implementing erosion control and water quality improvement practices. In 1980, $1,835,200 was appropriated to districts for solving sediment and erosion control problems. Local districts were required to update their soil conservation program before receiving state cost-share funds.

A district board may contract on a cost-share basis to furnish financial aid to a land occupier or state agency for the implementation of permanent systems for erosion control and water quality improvement. Landowners will be held liable for those funds appropriated to practices not maintained or willfully removed.

4. The Soil and Water Conservation Board has the following main powers and duties to:

(a) offer appropriate assistance to local districts in implementing any of their powers and programs;

(b) keep districts informed of the activities and experiences of all other districts;

(c) coordinate the programs and activities of the districts with appropriate agencies by advice and consultation;

(d) approve or disapprove the plans or programs of districts relating to the use of state funds administered by the State Board;

(e) develop and implement a comprehensive public information program concerning the districts' activities and programs, the problems and preventive practices of erosion, sedimentation, agriculturally-related pollution and flood prevention;

(f) assist in the implementation of a statewide program to inventory and classify soil types throughout the state as determined by the Minnesota Cooperative Soil Survey. It is anticipated that the soil surveys for the entire state will be completed or underway by 1990;

(g) conduct research concerning the nature and extent of erosion, sedimentation, flooding and agriculturally-related pollution, the amounts and sources of sediment and pollutants delivered to the waters of the state;

(h) develop programs to reduce or prevent soil erosion, sedimentation, flooding and agriculturally-related pollution;

(i) develop a priority system within the state to identify critical areas; and

(j) ensure compliance with statewide programs established by the State Board.

5. Soil and water conservation districts have been granted the power to:

(a) conduct surveys, investigations and research to identify problems and preventive practices;

(b) conduct erosion and sediment control demonstration projects;

(c) implement necessary practices for any purpose specified in this Chapter;

(d) enter into agreement with land occupiers or appropriate agencies to furnish financial or other aid;

(e) construct and maintain structures necessary for the performance of operations authorized under this Chapter; and

(f) develop and revise a comprehensive plan specifying the practices to implement the state policy.

NEW JERSEY

TITLE:	Soil Erosion and Sediment Control Act N.J. Stats. Ann. Sec. 4:24-17.5---4:24-55 State Soil Conservation Committee
LEAD AGENCY:	State Soil Conservation Committee Soil Conservation Districts Municipalities
STATE CONTACT:	Sam Race, Coordinator Soil and Water Conservation Services Division of Rural Resources New Jersey Department of Agriculture PO Box 1888 Trenton, NJ 08625 609/292-5541

NEW JERSEY EROSION AND SEDIMENT CONTROL PROGRAM

Introduction

New Jersey's Soil Erosion and Sediment Control Act is supplemental to Chapter 24, the New Jersey Soil Conservation Law of 1937, which provides for the conservation of the soil and soil resources of New Jersey and for the control and prevention of soil erosion. The original 1937 law laid out the groundwork for controlling soil erosion. It established the State Soil Conservation Committee and the Soil Conservation Districts to carry out the functions of the law, of which the primary one is the development of comprehensive plans for the conservation of soil resources and for the control and prevention of soil erosion. The program is intended to reduce the danger from stormwater runoff, retard nonpoint pollution from sediment and conserve and protect the resources of the state.

Under the new law, the State Soil Conservation Committee is required to issue standards and rules for controlling soil erosion and sedimentation. Before any municipality can issue a construction permit for a land-disturbing activity, the local soil conservation district must approve a soil erosion and sediment control plan submitted by the developer. The plan must conform to the state standards.

The New Jersey Soil Erosion and Sediment Control Act is aimed primarily at preventing urban soil erosion and sedimentation. New land-disturbing activities that require approval of a soil erosion and sediment control plan include: (1) demolition of one or more structures; (2) construction of a parking lot; (3) construction of a public facility; (4) operation of any mining or quarrying activity; and (5) clearing or grading of any land for other than agricultural or horticultural purposes. The bill requires any person engaged in a land-disturbing activity that does not call for a state or local government permit to submit and receive approval of a soil erosion and sediment control plan from the local soil conservation district. Projects undertaken by the Department of Transportation do not require such approval, but must comply with standards set jointly by the Department of Transportation, the Department of Environmental Protection, and the State Soil Conservation Committee. They must also be endorsed by the soil conservation district.

Major Program Features

1. The State Soil Conservation Committee has the power to formulate, promulgate, amend and repeal standards for the control of soil erosion and sedimentation.

2. Approval by the state, county, municipality or instrumentality, of an application for development for any project, is contingent upon certification by the local district of a plan for soil erosion and sediment control. Those municipalities adopting ordinances which conform to state standards and have obtained approval from the State Soil Conservation Committee, are exempt from district jurisdiction. Of 567 municipalities, 85 have chosen to adopt soil erosion and sediment control ordinances.

3. Regulations apply to land-disturbing activities of 5,000 square feet of surface area or more, with the exception of all minor disturbances conducted on single family residences that are not part of a subdivision.

4. Any person who violates any of the provisions of this Act or fails to comply with the provisions of a certified plan is liable to a penalty of not less than $25 nor more than $3,000.

Rules and Regulations

1. The Committee has the authority to offer assistance to the district supervisor in carrying out any of its powers and programs.

2. The districts may:

   (a) conduct surveys, investigations, and research relating to the character of soil erosion and the preventive and control measures needed;

   (b) conduct projects in order to demonstrate methods of soil erosion control;

   (c) carry out preventive and control measures within the district;

   (d) furnish financial or other aid to any agency or landowner within the district to carry out erosion control and preventive operations within the district;

   (e) develop comprehensive plans for the conservation of soil resources and for the control and prevention of soil erosion within the district; and

   (f) formulate regulations governing the use of lands within the district in the interest of conserving soil and soil resources and preventing and controlling soil erosion. Districts are required to conduct public meetings and hearings on tentative regulations and objections by owners of 25 percent or more of land within the district.

3. Regulations to be adopted by the districts can include:

(a) provisions requiring the construction of terraces, terrace outlets, check dams, dikes, ponds, ditches, and other necessary structures;

(b) provisions requiring observance of particular methods of cultivation including contour cultivating, contour furrowing, lister furrowing, sowing, planting, strip cropping, seeding, and planting of lands to water-conserving and erosion-preventing plants, trees and grasses, forestation and reforestation;

(c) specifications of cropping programs and tillage practices to be observed;

(d) provisions limiting the cultivation of highly erosive areas or of areas on which erosion may not be adequately controlled if cultivation is carried on; and

(e) provisions for such other means, measures, operations and programs as may assist conservation of soil resources and prevent or control soil erosion in the district.

VIRGINIA

TITLE:	Erosion and Sediment Control Act Code of Va. Tit. 21, Ch. 1, Secs. 21-89.1 -- 21.89.15
LEAD AGENCY:	Local municipalities
STATE CONTACT:	Gerard Seeley, Jr., Chief Engineer Virginia Soil and Water Conservation Commission 830 E. Main Street, Suite 800 Richmond, VA 23219 804/786-2064

VIRGINIA EROSION AND SEDIMENT CONTROL PROGRAM

Introduction

The Virginia General Assembly adopted the Soil and Water Conservation Districts Act in 1938 to carry out erosion and sediment control programs on a joint federal, state and local basis, primarily through the creation of local soil and water conservation districts. The law addressed erosion control on agricultural lands through voluntary programs of local districts.

Fairfax County adopted an erosion and sediment control ordinance that took effect in January 1967. It was the first urban erosion and sediment control program in Virginia. It required developers to submit an erosion and sediment control plan to the county for approval before land clearing or grading could begin.

In July 1971, the State Water Control Board adopted a policy for waste treatment and water quality management in the Occoquan Watershed. The policy required local political subdivisions to adopt a siltation control ordinance containing adequate enforcement provisions to control siltation on development projects within the Occoquan Watershed.

During 1971, the Erosion and Sediment Control Task Force of the Governor's Council on the Environment reported on erosion and sedimentation problems in Virginia. The report included recommendations on several features to be incorporated in a legislative proposal to combat the problem. In August 1971, the Attorney General gave an opinion stating that sediment and silt are pollutants under the state water control law and therefore must be considered in determining water quality in Virginia.

The efforts of Virginia's Soil and Water Conservation Commission and the Erosion and Sediment Control Task Force resulted in the 1972 enactment of a bill for erosion and sediment control on land-disturbing projects involving other than agricultural or silvicultural activities. The purpose of the law was to establish and implement a statewide, coordinated program to control erosion and sediment and to conserve and protect the land, water, air and other natural resources of Virginia. The State Soil and Water Conservation Commission was made responsible for administering the law.

Guidelines, standards and criteria were adopted by the Commission and became effective July 1, 1974. Local erosion and sediment control programs consistent with the state program were developed 18 months later and 172 programs are being carried out by (1) four soil and water conservation districts; (2) 168 counties, cities, and incorporated towns; or (3) a joint venture between a district and municipality. These local programs must be approved by the Commission.

Major Program Features

1. State Erosion and Sediment Control Program. Standards, guidelines and criteria were developed by the Soil and Water Conservation Commission for the effective control of soil erosion, sediment deposition and non-agricultural runoff. The Commission conducted public hearings on the proposed standards before their adoption or revision.

2. Local Erosion and Sediment Control Programs. Each local government or conservation district was required to adopt a program which was at least as stringent in its guidelines, standards and criteria as the state program, except that securing approval of or obtaining a permit can not be more difficult than the law provides; nor may local governments require compliance for those land-disturbing activities exempted by state law. The law exempts certain minor land disturbances, individual public utility construction and repair, separately built single-family dwellings and usual horticultural, forestry and agricultural practices. Projects of state agencies are exempted from local control; they require approval by the Commission. Plans for interjurisdictional projects may be submitted to the Commission or to each locality involved at the option of the applicant.

The local programs required an erosion and sediment control plan approved by the local government before land-disturbing activities could begin. The local authority can require an applicant to insure that emergency measures for appropriate conservation be taken at the applicant's expense. To insure this, the authority can require a letter of credit, cash escrow, performance bond or other legal arrangement before issuing the permit.

The local programs provide for monitoring and inspection of land-disturbing activities. If anyone violates any part of the local ordinances, the enforcement authority can prosecute or seek injunctions or other appropriate legal relief to stop the damaging activity. Local programs also included a plan for carrying out necessary training, information and education programs to insure orderly implementation.

Each county and municipality that has adopted erosion and sediment control ordinances serves as the local unit for inspection and enforcement. Under memoranda of agreement, local conservation districts review erosion and sediment control plans for technical adequacy and provide technical assistance from the U.S. Soil Conservation Service (SCS). With the help of SCS and the Extension Service, districts conduct local training, education and information programs.

3. Regulating Land-Disturbing Activities. No person can engage in any land-disturbing activity since the adoption of the conservation standards by the districts, counties, cities or towns until an erosion or sediment control plan for the activities has been submitted to the respective authority for review and approval.

4. Penalties. A violation of this article constitutes a misdemeanor and is subject to a fine not exceeding $1,000 or 30 days imprisonment for each violation, or both.

STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
CENTENNIAL OFFICE BUILDING • ST. PAUL, MINNESOTA • 55155

OFFICE OF THE
COMMISSIONER
(612) 296-2549

July 19, 1983

Senator Dave Durenberger
353 Russell Senate Office Building
Washington, D. C. 20510

Dear Senator Durenberger:

Shirley Hunt of your staff requested that the Department of Natural Resources provide you with our views concerning your proposed non-point source pollution amendments to the Clean Water Act.

I am pleased to support your efforts to provide a necessary and urgently needed action program to help solve the continuing problems caused by non-point source pollution. Your amendments should provide the necessary assistance to improve the quality of the waters in Minnesota's many lakes, streams and wetlands for the benefit of our citizens and the improvement of our natural resource base.

Although the program will primarily involve the Pollution Control Agency (PCA) in Minnesota, the Department of Natural Resources has major interests and concerns in the effort and we will work closely with the PCA in its implementation efforts.

I am sure that you will receive specific comments from the PCA regarding the proposed legislation and, therefore, I will not attempt to provide specific DNR comments.

I would, however, like to point out several areas for your further consideration:

First, the statement is made that non-federal sources shall provide the remainder of the implementation costs not furnished by federal grants. I assume that this would not preclude the use of state funds provided under state programs which now address non-point pollution. In other words, the legislation should not require the non-federal share to be supported only by "new" state funds.

Second, the requirement that an upstream state develop an implementation plan which is compatible with the implementation plan adopted by the downstream state may pose a number of potential financial and political problems. For instance, what happens when a downstream state establishes an unreasonably strong program which would be beyond the upstream states' capabilities to implement? The point is, the subsections as presently set forth do not contain sufficient qualifying language regarding the degree and limits on compatibility of multi-state implementation plans.

Third, I agree that sanctions of some type may be needed to insure the application of certain conservation measures. However, the sanctions should only apply to directly related programs affecting water quality.

In closing I'd like to reiterate that I fully support your efforts to establish an action program for implementing a non-point source water quality program. I am sure that there will be further discussion on the specific aspects of the program and I appreciate the opportunity to provide comments at this time.

Yours truly,

Joseph N. Alexander
Commissioner

SEP 16 1983

JOHN W. MIXON
Director

Georgia Forestry Commission

BOX 819 MACON, GEORGIA 31298-4599

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Lakeland

September 13, 1983

Honorable Robert Stafford
Committee on Environment & Public Works
United States Senate
Washington, D. C. 20510

Dear Senator Stafford:

Upon hearing of your committee's involvement with the proposal for ammending the 1977 Clean Water Act, we felt it necessary to respond with our views and comments on the subject.

As lead agency of the Silvicultural Non-Point Source Program in Georgia, we are vitally interested in any proposed changes , from a federal standpoint , which could affect water quality efforts in the state.

Since 1981, we have had a very solid and successful program in informing and educating the public and forestry sector concerning forest water quality. Hopefully, the comments we offer will help you in understanding our viewpoint.

If we can be of any further assistance to the committee regarding these Non-Point Source ammendments, please let us know.

Sincerely,

John W. Mixon

John W. Mixon
Director

JWM:mjt

COMMENTS
ON PROPOSED AMENDMENTS TO CLEAN WATER ACT OF 1977

SUBMITTED TO THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

BY THE

GEORGIA FORESTRY COMMISSION, MACON, GEORGIA

September 1983

1. Federal Funds

The Georgia Forestry Commission has used federal monies funnelled through the Environmental Protection Division of the Georgia Department of Natural Resources to implement the forest water quality management program which has been in effect since 1981. We feel these monies have allowed us to develop this program to a greater extent than we could have using only state monies. Our program has been nurtured over the years from ideas of the Forestry Non-Point Source Technical Task Force to the strong program it is today. The program has gained respect from all levels of forestry in the state and, hopefully, it will remain as strong in the future. Without federal financial assistance, we will continue to promote this program, but perhaps in a smaller way. We certainly feel that federal dollars are wisely spent in promoting state non-point source programs and should continue to do so.

2. Cost Sharing

Cost sharing means to pay somebody for something they ought to do on their own. We do not believe this is a very sound way to get landowners to use Best Management Practices. We feel landowners should use BMP's not because they're being paid to, but because BMP's lessen the damage to their land and water during various types of forestry activities. The key should be in motivating them, not financially, but with concern for the environment they control.

3. Uniform Interstate Water Quality Programs

Most all states have some sort of non-point source program with some better than others. Some states have more problems with non-point source pollution than others. Every effort should be made to get the states to create, promote and maintain their own programs. The less interference we have from federal agencies, the more freely the programs will be able to operate. Sure, some states need help from federal agencies in developing their programs, but give the states the responsibility to carry it out. With a little help, all fifty states can proclaim a workable and worthwhile non-point source pollution program.

We have to disagree with our sister state, Florida, in promoting the development of interstate Best Management Practices as this will bring about increased intervention from the Environmental Protection Association. Most states which border each other and have similar physiographic characteristics now have similar BMP's in their programs. To stand analyze BMP's would only create additional problems far greater than tnose being experienced now. Besides, each state will have to have their own program approved by EPA anyway before it can be implemented. We feel the Federal Government should have a lesser role, not a greater one, in the development and implementation of NPSP programs. We need assistance and direction from the Federal Government, not control.

4. Use of BMP's as the Major Emphasis in Non-Point Source Pollution Program

We agree that this concept is perhaps the best way to address NPSP problems. In forestry most BMP's, which are basically common sense ideas applied in a pre-planning situation, have no actual cost involved. Thus, there is no cause for argument by those who are opposed to BMP's from this standpoint. Best Management Practices will drastically reduce and in some cases eliminate sources of non-point source pollution if handled correctly and with adequate knowledge. Therefore, it will be the responsibility of the states to successfully transmit this knowledge to those who will implement it.

STATEMENT

of the

MINNESOTA FARM BUREAU FEDERATION

before the

U.S. SENATE COMMITTEE

on

ENVIRONMENT & PUBLIC WORKS

relating to

NONPOINT SOURCE WATER POLLUTION

1:00 P.M.

City Council Chambers

Moorhead, Minnesota

August 24, 1983

Mr. Chairman, and members of this committee, my name is John Berg, and I represent the 32,000 members of the Farm Bureau in Minnesota. We appreciate the opportunity to appear before you today to express our views relating to proposed amendments to the Clean Water Act.

The relationship between agricultural run-off and water quality has been studied extensively since the 1972 Clean Water Act amendments. Although quantification of agriculture's contribution has been difficult, it is generally acknowledged that farm run-off is a substantial contributor to the pollution burden of our nation's waters.

During the past decade, major progress has been made toward abating agriculturally related pollution discharge. "Concentrated animal facilities" have been regulated under the National Pollutant Discharge Elimination System (NPDES), substantially reducing the presence of livestock wastes in water.

Soil conservation measures costing more than $3.5 billion have been installed on farms and ranches. Many of the conservation practices, aimed at keeping soil in place, have greatly reduced the quantity of soil particles and the attached pesticides and fertilizer entering the nation's waters. Special projects around the Great Lakes have identified specific problems and implemented corrective measures.

Recent shifts in tillage technology have produced dramatic results. From 1980 to 1982, an additional 4.4 million acres of cropland were "no-tilled" . . . planted into row crops with no tillage at all. An additional 19 million acres were brought under other conservation tillage techniques or practices intended to increase surface cover during planting thus reducing erosion/run-off problems.

Today, over 25 percent (or over 100 million acres) of all cropland in the U.S. is under conservation tillage. This is a four-fold increase over the past decade. More importantly, the highest levels of participation are in the areas of historically high erosion--areas that have been high contributors to water quality problems. In the corn belt states, where 36 percent of the land has been identified as highly erodible, 52 percent of the crop land is now "conservation-tilled." This progress has been aided by demonstration projects conducted at the local level.

Despite recent progress, we believe more can be done without imposing intolerable burdens on an already severely stressed agriculture.

During consideration and development of the 208(b)(2)(F) portion of "Areawide Waste Treatment Management" plans, most states identified a comprehensive list of "Best Management Practices" (BMP) intended to" . . . control to the extent feasible . . ." non-point pollution from agricultural sources. Some of these practices have been implemented on many farms. Of the wide range of measures identified, some are effective, some are cost-effective, some are practical, and some, are all of the above.

We recommend that the lead agency responsible for water quality in each state be encouraged to review the state 208 plans' "BMPs", and take into account any new information that might be available, including results of the recently completed RCA study conducted by USDA. Based on the results of the review, and appropriate public input, the states would identify those practices most cost-effective and most likely to be accepted by the impacted land owners and apply to EPA for cost-share funds for demonstration projects. Demonstration projects would provide farmers and ranchers an opportunity to gain first hand knowledge of the methods of run-off reduction, potential impacts on yields, costs of production, special skills required, likely management problems, and future profitability of the operation.

Where demonstration projects have been used as educational tools in the cornbelt, conservation tillage has been well accepted (particularly so where hands-on experience with equipment has been provided). We believe that this trend could be continued in other regions and that farmers and ranchers would adopt other good BMPs if appropriate demonstration programs could be developed.

We suggest the committee recommend $25-$35 million for each of the next four years for demonstration projects. Funding at this level would be sufficient to operate demonstration projects in most states giving emphasis to identified high priority areas of the state. Since the program would be for a specified time, states would be able to plan the program operation with certainty. We further recommend that the legislation require the funds be used only for demonstration projects. Extensive area wide planning has already been done. USDA just completed a comprehensive, state-by-state assessment of soil conservation needs and capabilities. We believe it's time to get some action on the land. States have performed the studies and planning necessary to get things moving. In most states, plans are being implemented today. If further "dusting off" of 208 plans is necessary to begin an effective demonstration program, let the states do this first, as a statement of their commitment to action.

Much has been done to address water quality problems, and much remains to be done. Agriculture is willing to participate in a reasonable, cost-effective run-off control program. It is time to move ahead with the knowledge gathered over the past decade. The program outlined above will, in our opinion, lead to significant additional progress in controlling agricultural run-off.

Statement of Roy Faught, Chairman
Water Resources Committee
North Dakota Association of Soil Conservation Districts
to
Committee on Environment and Public Works
on
Nonpoint Pollution Control Features
in the
Amendments to the Clean Water Act
1983

Members of the Senate Committee:

I am Roy Faught, Immediate Past President of the North Dakota Association of Soil Conservation Districts and presently serving that organization as Chairman of their Water Resources Committee.

Our Association has recognized for some time that some of our streams and lakes were carrying larger sediment loads than we liked. Pin pointing all the causes has been a difficult thing. We know both point and nonpoint pollution has been a source. Point sources were much easier to identify with nonpoint, credited mainly to agriculture, being much more difficult to identify. Solutions for this source are not so easy to apply either.

The complex nature of our agricultural industry today, with its many variables and the many commodities we grow, along with the shifting of growing those commodities from one area to another due to many factors are points we must consider when we talk about nonpoint pollution and its solution. We have these changing situations every day in our industry. Some because of convenience for us as farmers, some because of farm programs of our government. We believe the ingenuity of the American farmer to produce an abundance of cheap food should not be hindered by mandatory laws.

North Dakota is proud to be able to say almost 70% of our land is under some form of conservation treatment. We also feel with our voluntary effort and educational programs such as we have for those areas we have selected for 208 targeting activities are solving problems. These are accomplishments that show farmers will voluntarily cooperate when they know what is causing the pollution.

North Dakota, to further check on their programs, passed a study resolution at the last session of our legislature. This is designed to find out if we need new soil conservation laws or maybe even mandatory conservation features in this law. This study is just beginning. Our Association, as stated in our 208 Policy Position, indicates that we feel we don't need new laws and that voluntary programs will work.

We recognize the need for continued research and water quality monitoring. This could and should be coordinated on the state and local level. Incentives by federal grants to states and soil conservation districts could aid much in this endeavor. Our state has tried to make local money available to soil conservation districts by two methods: 1) Providing small grants to soil conservation districts for their use in hiring conservation technicians. Its purpose - get conservation on the land. Those getting grants will be judged on the acres protected through use of this money; 2) Provided the means for a soil conservation district to levy a one mill tax on all property in the soil conservation district. This money can be used for any conservation purpose decided upon by the local elected board of supervisors for that soil conservation district.

The North Dakota Association of Soil Conservation Districts has also been active in promoting conservation tillage such as no till and minimum till. Many farmers are experimenting (with mostly successful results) with these ideas. Soil conservation districts are helping farmers with this by providing rental of no till drills and other conservation equipment so each will try the new ideas. This helps the farmer because he can keep his costs in equipment purchases under control until he finds out if the practice will work for him. Our National Association is also promoting conservation tillage as are many other states. This kind of farming will control nonpoint pollution.

The USDA Soil Conservation Service has initiated a targeting program whereby they will provide people and other resources they have to areas showing the greatest conservation problems. We think this will assist in getting at the more serious problems faster.

Funding of all programs seems to always be a problem. Conservation programs have been harmed by farm programs not having any longevity. It seems to us we need consistency in programs so we know what we can plan on from year to year. This kind of feature made the Great Plains Conservation Program one of the most effective ways of getting conservation on the land.

Attached to these general comments are pages 24 and 25 of the Policy Position Statement the North Dakota Association of Soil Conservation Districts has on nonpoint pollution. This was adopted in 1982.

You will note sections of this relate to the amendments you have under consideration. In particular we state Congress, at the time we adopted the policy, had not indicated their financial support toward implementing a water quality program. Districts in North Dakota will assist in the program but the amount of help will be based on what finances are available.

We also recommend any nonpoint program be based on a voluntary approach. We would oppose a mandatory program. We believe and also state in our policy that a voluntary program can be successful. Such programs help preserve the pride of the individual landowner in good land management. We feel this pride or land ethic is the key to successful implementation of proper land treatment on privately owned and operated lands.

Throughout North Dakotas planning efforts we all worked under the premise of whatever came out in our 208 plan must be workable, affordable and acceptable. We have kept this in mind when we developed our Association Policy on 208. Our state plan looked to the year 2000 as the target date for installation of all 208 management practices. Your amendment refers to a four year time frame. We agree with Mr. Schwindt, North Dakota State Department of Health, that this is too short. We would need many more people if we were to get these practices designed and installed in this short a period. We would also need considerable funding and then it would still be a question if this could be accomplished in 4 years.

We do support the idea that a program must be implemented. We want this to be voluntary. We will need federal help in manpower and money. This could best be served by grants to soil conservation districts. States should determine the program they want. Lastly, as I said before, farm programs must have some longevity so farmers can do a decent job of planning and the farm program should not penalize the good conservation farmer as so many in the past have done.

We can see the federal government monitoring the effectiveness of our program and make suggested changes when needed but do not make so many paper requirements that that is all we have for a program. Unless it is practical, workable, affordable and acceptable it will not fly even if it is mandatory.

Thank you for accepting this paper for inclusion in the hearing to the Clean Water Act Amendments.

L. Non-Point Pollution

1. General - The SCD's, in cooperation with the SCS and others, have worked on soil erosion problems in North Dakota since 1937. This has included assisting over three-fourths of the farms and ranches to reduce soil erosion and carry out other conservation measures. About 60 percent of all of the tilled farmland in the state is currently adequately treated for sustained productivity. This means that soil losses have been reduced to a level which will not impair future productivity for agricultural purposes. The on-field soil movement on cultivated fields has been reduced to less than 3-5 tons per acre per year (less than 1/32 of an inch). Such movement on the non-cultivated fields has been reduced to even a much lower figure.

   The reduced sediment from the adequately treated agricultural land is largely deposited under the base of slopes and in small on farm channels and waterways. The bulk of sediment and associated agricultural pollutants from farmland that reach streams comes from few small and scattered inadequately treated areas that lie close to large drainageways and streams. Sediment from even the inadequately treated areas that lay some distance from the large drainageways and streams is largely trapped before it reaches streams.

2. We believe that the following procedure should be adopted for reducing nonpoint agricultural pollution of North Dakota waters:

   a) Critical area treatment - these are the main sediment and other nonpoint agricultural sources of water pollution.
      1) Through onsite visual inspection, identify the more critical sources of nonpoint agricultural pollution that lay above polluted stream segments.
      2) Through individual or group contact, discuss the problems with the affected landowners and assist them in designing needed treatment.
      3) Provide the landowners the technical assistance plus available cost share help to install the needed treatment.

   b) Overall sediment reduction - It is recognized that part of the sediment and association agricultural pollutants from other than critical areas will reach streams, lakes, and other bodies of water. In view of this, some broad scale land treatment of the type described below needs to be undertaken.
      1) Reduce the acreage of bare summerfallow.
      2) Reduce the number of fall tillage operations on harvested crop fields.
      3) Increase the number of terraces, diversions, and grassed waterways.
      4) Increase the conversion to grass of steep rolling lands poorly suited to cultivated use.
      5) Increase the acreage of grazing lands properly used.

3. Summary

   a) The SCD's with information assistance from the Cooperative Extension Service, technical assistance from the Soil Conservation Service, cost share assistance from the Agricultural Stabilization and Conservation Service and Soil Conservation Service, loan assistance from the Farmers Home Administration, and service from other USDA and state agencies, can achieve these results. No new authorities, laws, rules or regulations are needed. The existing voluntary programs are adequate. They have one distinct advantage -- they help preserve the pride of the individual landowner in good land management. This pride or land ethic is the key to successful implementation of proper land treatment on privately owned and operated lands.

b) Considerable work has been done in all states and in particular North Dakota in assessing our water quality problems. Some areas have been identified as having a problem. SCD's asked to participate in preparing this inventory. EPA is now indicating that the program must be implemented. Congress has not indicated their financial support at this time by providing money for implementation. The plan for correction of water quality problems indicates districts will again participate. However, the question still remains how much can they, or will they, assist with or without financial help? EPA states there is a lack of information regarding the causes and effects of nonpoint pollution and the cost effectiveness of control programs. They are looking for 10 or 15 projects to study these problems. We can and will support this kind of study but ask that they then hold off requiring further activity by individuals until they know what is needed.

We recommend the program of implementation be based on a voluntary approach. We would oppose a mandatory program. For implementation, we recommend a pilot project with adequate monitoring to determine what practice or practices are needed to solve the problem. In order for any program to reach its goals it must be practical and affordable.

Local districts income in North Dakota is basically from their tree planting program so they are self supporting from that standpoint. Should additional duties in water quality be assigned to them, the assignor (EPA) must also support them with funding. Districts cannot assume responsibility for funding 208 nonpoint activities.

We, therefore, recommend before any program is initiated that districts be assured money is available for the necessary technical and cost share assistance for farmers.